American Artisan and Hardware Record

Sheet Metal—Roofing—Warm Air Furnaces—Stoves

Vol. 93, No. 14 CHICAGO, APRIL 2, 1927 $2.00 Per Year

Steel Furnace Sales Gain

NO undersized radiators—a special size for each furnace. The Standard Code capacity of every size Waterbury is plainly designated by a metal plate.

RAPID strides are being made in steel furnace installations. Waterbury sales are going ahead at a pace never before approached, due to the demand for this new model.

Not simple steel, but welded SEAMLESS steel, the heaviest used in furnace construction. That spells CLEAN heat permanently.

Greater Humidity

Not simply a water-pan, but really adequate moisture, with a *shallow* pan placed at the *top* for more heat and even distribution. Folks want this feature. Automatic if desired.

Each Waterbury installation sells more of these great furnaces. Let the Waterbury help build up your [illegible] account this year. May we send you our agency proposition to consider?

The Waterman-Waterbury Co.

1122 Jackson St., N. E., Minneapolis, Minn.

Complete Stocks carried in Philadelphia, Pittsburgh, Albany and Kansas City

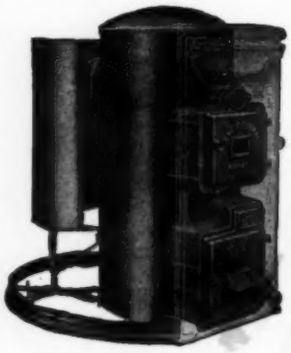
WATERBURY SEAMLESS FURNACE

REG. U.S. PAT. OFF. PIPE OR PIPELESS

It is easy for you to know all about the Weir just write for this book

WE wouldn't try to fool you by calling an ordinary catalog a Book of Facts just to induce you to write for it.

This Weir Book of Facts is a catalog in that it catalogs *the facts* which make the Weir the outstanding furnace in the field of better furnaces, but aside from that it is not an ordinary catalog.



It is the type of literature that we know from personal contact you will welcome. We know you want *facts* and that's what we have put in this book.

And it is a book that your prospective customers can read---the kind of advertising that makes both *dealer* and *user* want to *see* the Weir.

A good many men have been *sold* on the Weir just by studying this little red book. If it can do that then you know that it contains information you ought to have.

Just tell us you want a copy---we will be glad to send one.

The MEYER FURNACE Co.
Peoria-Illinois

Do You Sell A Furnace That The Public Demands?

The SUPER-SMOKELESS Furnace is the only really smokeless furnace on the market. It brings satisfied customers and earns big profits.

VIEW OF CASTINGS OF THE SUPER-SMOKELESS FURNACE

DO you handle a furnace that the public wants, that will give them the best results and insure satisfaction?

The SUPER-SMOKELESS Furnace is without doubt the best furnace from the home owner's point of view. The Dealer who sells them places himself in a class apart—actually above competition. One installation leads to others, and enables the Dealer to build his business and increase his profits.

The SUPER-SMOKELESS Furnace will burn soft coal without smoke, utilizing the smoke and gases as valuable fuel. It will also burn hard coal with the highest efficiency and fuel economy. Actual tests and thousands of installations have proved conclusively the fuel saving qualities of this remarkable furnace, both with soft coal and hard coal.

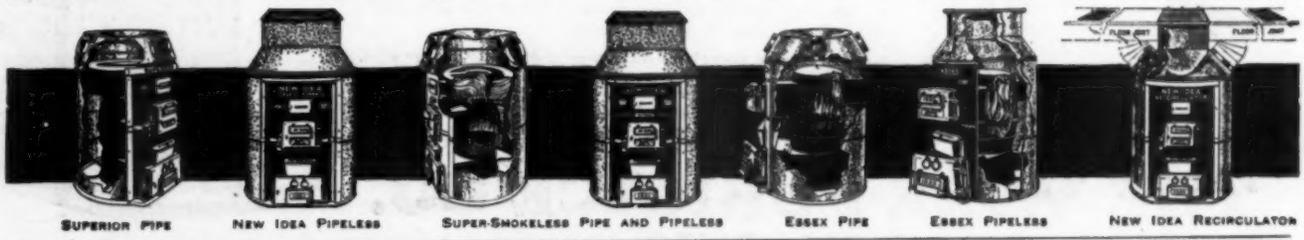
The SUPER-SMOKELESS Furnace is distinctly a "feature" furnace. It possesses such modern scientific features as: One-Piece Radiator and Feed Section; Frameless Feed and Ashpit Doors; Scientifically-proportioned Feed Section; Direct-connected Cleanout; Large Convenient Air Moistener; and patented "Slip-on" Casing Connections.

The Utica Heater Company has manufactured high grade heating equipment for forty-seven years. We stand behind our Dealers and help them sell the furnaces they buy. We do not sell or install direct, and do not intend to. It will pay you to write for our Exclusive Dealer Proposition. DON'T DELAY—WRITE TODAY.

UTICA HEATER COMPANY

UTICA, N. Y. — CHICAGO, ILL. — MANUFACTURERS OF THE

CELEBRATED LINE OF WARM AIR FURNACES FOR EVERY HEATING NEED



SUPERIOR PIPE — NEW IDEA PIPELESS — SUPER-SMOKELESS PIPE AND PIPELESS — ESSEX PIPE — ESSEX PIPELESS — NEW IDEA RECIRCULATOR

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
Entered as Second Class Matter June 25, 1887, at the Post Office at Chicago, Illinois, under act of March 3, 1879.

WISE Announces

a New Steel Furnace

The WISE Practical Steel Furnace

Wise dealers wanted a Wise Steel Furnace—a furnace high in quality—up to the high standard set by the Wise Trade Mark for over 20 years. So we designed this Wise Steel Furnace—a furnace that has not only guaranteed high quality but practical, exclusive and worth-while features—

THE RADIATOR IS DIFFERENT from any other. Notice the cast iron soot box and clean-out at the bottom which eliminates the weakest point of steel furnace construction.

RIVETED AND WELDED BODY—a strong, durable construction and immense radiating surface.

SPECIAL DESIGN GRATES and LEVER SHAKER HANDLES. *There are other features too—write today for full details.*

The New Wise Steel Furnace

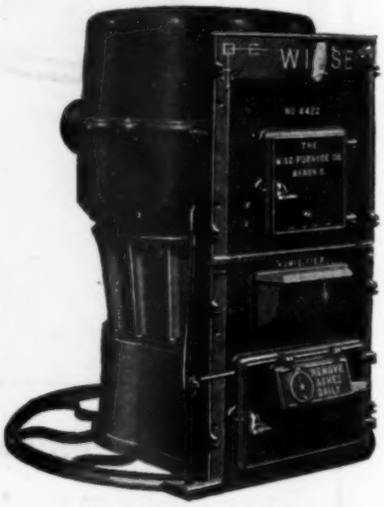
New WISE Improvements

Improved Construction of Wise Open Dome Furnace.

Notwithstanding the prestige the old construction commanded the new Wise improvements make it still better.

NEW CELLULAR ONE-PIECE FIREPOT, heavily constructed. A series of air cells which extend from bottom to top enables air to be pre-heated before entering above and into the fuel. This supplies a continuous and evenly distributed air blast providing complete combustion.

ELBOW SHAPED FLUE COLLAR ON INSIDE OF RADIATOR TURNED UP so all of the heat within the radiator must follow the castings to the top before entering flue. *Other features too—see our latest circulars illustrating and describing construction in detail.*



The New 40 Series

New WISE Ideas

New Wise Ideas Improve Return Flue Radiator Type

The entirely new and PATENTED Radiator in this furnace is something out of the ordinary. The radiator is constructed to eliminate the objectionable dirt collecting and clean-out features of the ordinary return flue types.

The feed chamber and the top radiator are so constructed as to allow communication between them which brings the opening of the fire flues of the radiator directly into the feed chamber, making the flues readily accessible for cleaning through the upper feed door. The dirt falls directly into the firepot, eliminating the necessity of taking the dirt out by means of a narrow neck passage. This is a wonderful advantage to the owner. An easy cleaning radiator means that it will be kept clean, and a clean radiator means increased efficiency.

The one-piece cellular firepot is a feature of this Wise furnace also.

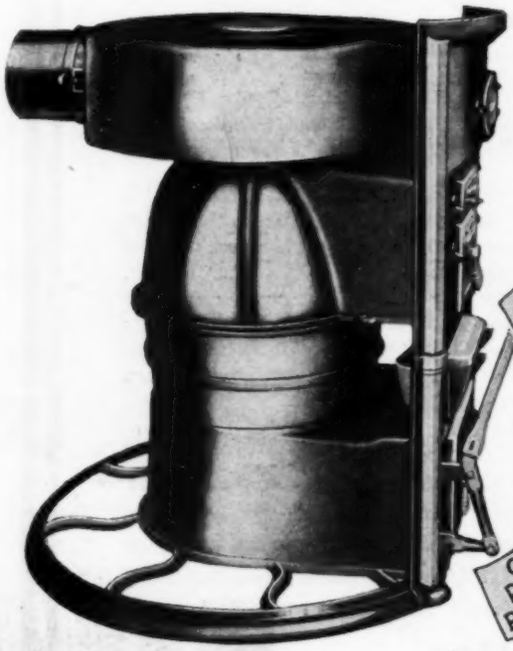
Now, with this Wise Line, you have the most complete quality furnace line to meet your every requirement, enabling you to confine your purchases to one house.

The New 20 Series

THE WISE FURNACE CO.

AKRON, OHIO

The Parade of ROBINSON Features



It takes a mighty good furnace to make a parade of its features. Note them one by one. Every banner tells a story of real merit.

THE Robinson "Gem"—the quality furnace—yet still in the competitive field—a furnace with more features, which means more sales. The "Gem" enables the live dealer to meet and beat competition.

The parade tells its own story. To dealers, it means an invitation to get in the band wagon.

Write for prices to get into the Big Tent of Profitable Sales

The Robinson Gem

Robinson Furnace Co.
205 West Lake St., Chicago, Ill.

"Western" Boiler Plate

Unusually Large Radiator

With One-Piece Side Wall Construction.

Braced Support Counteracting Expansion and Contraction.

Two or Three Flue Travel.

Rust-proof Bottom of Galvanized Steel.

Collar Connections have Telescope Joint, Asbestos Packed.

THE Western Furnace has many other practical features of design which make it an unusually easy and satisfactory heater to sell. Among them are the top, corrugated to take up expansion and contraction, one-piece body construction without rivets on front extension, and heavy double grates which are easily shaken from a standing position.

Ask for our special dealer's proposition, which includes long profits, easy terms, and a special selling plan with many advertising helps.

Western Steel Products Co.
130 Commonwealth Ave.
Duluth, Minnesota, U. S. A.

The strong back that carries a big load for many years—

NOTICE this powerful back—these radiators on the "Home Comfort" are built on curved lines with no square corners. This construction provides immense and perfect radiation—the steel vertical tubes and the fire travel arrangement securing all the heat possible from the fuel consumed.

The Dust Box is one piece solid heavy casting with two clean-outs attached that protrude through the casing—no bolted or cemented joints. Notice the extra wide circuit of the radiators, allowing a free circulation of air around the rear part of the furnace, eliminating what has proven to be one of the weak parts in furnaces of similar construction. This is an exclusive feature of the

"HOME COMFORT"

WE have told you here only one part of the big Home Comfort story. Its entire construction is first quality in design and material. We want you to write now for our catalog which gives complete details.

The agency for the sale of "Home Comfort" Steel Furnaces in your territory is bound to make more business and profits for you.

Your customers will boost the "Home Comfort"—they can't help it—its quality keeps them satisfied a lifetime.

Write today for our new booklet—"The Joy of Home Comfort" and a booklet called "House Heating"

ST. LOUIS HEATING COMPANY
2901-11 Elliot Ave. St. Louis, Missouri.

PITTSBURGH DISTRIBUTOR
Wagener Bros., 3605 East Street

Quality Made *for a* Quality Business

If you ever expect to get ahead in the furnace business, you have got to do business out of the ordinary.

The place to begin is with the furnace you sell. Take on the new Series "C" Moncrief Furnace. It has selling points that sell quicker, construction points that make installation easier, and efficiency features that make heating better.

If you want to do more business and make more money, ask us for the particulars of our proposition.

The HENRY FURNACE & FOUNDRY CO.

3471 E. 49th St. Cleveland, Ohio

We supply everything used on a warm air heating job.

Distributors:
Carr Supply Co., 412 No. Dearborn St., Chicago, Ill.
Johnson Furnace Co., Kansas City, Mo.
F. H. Hanlon, Batavia, New York
Moncrief Furnace Co., Atlanta, Ga.
Moncrief Furnace & Mfg. Co., Dallas, Texas

MONCRIEF FURNACES

COL-BURN

An Improved STEEL HEATER *of Highest Quality*

Your customers *can't forget* to open direct damper on the COL-BURN—*It opens automatically* with the feed door.

JUST one of the features you'll find makes the Col-Burn easier to sell. It is a new feature (patent applied for) and it is also arranged so that direct damper can be opened by hand without opening feed door.

The upright shaker is another new improvement—another feature your customers want.

Notice the extra large water pan with *hinged lid.*

The Col-Burn is constructed of highest grade 3/16" steel plate—same as used for locomotive boilers—arc welded gas tight, soot tight and *oil tight.*

The Col-Burn is singularly adapted for oil burning—let us tell you why.

The Col-Burn has all the fine points of construction demanded by *present-day* requirements and we are offering—

EXCLUSIVE AGENCIES TO LIVE WIRE DEALERS

Let us tell you about it and the COL-BURN 10 YEAR GUARANTEE

Write today for 1927 catalog and prices.

COLBURN HEATER CO.
1955-75 North Long Avenue
CHICAGO, ILLINOIS

Now!

A new and better furnace that more than meets the requirements of the

STANDARD CODE

The

NEW FLORAL CITY QUEEN FURNACE

THE size of the casing and the relation of radiating surface to grate area have been carefully figured out according to the Standard Code formulated by the National Warm Air Heating and Ventilating Association and the ratings on this furnace are also as determined by the Code. That's a good selling point to make along with your Code installations—a real Code furnace.

But the New Floral City Queen is more than that—just remember that this furnace is *just out* and that it has features *new* to the industry.

We tell all about this New Floral City Queen and its every part and feature in a special broadside which we will gladly send you.

Write for this broadside and the Floral City Queen details TODAY

Floral City Heater Company
Monroe, Michigan

CHICAGO OFFICE
1654 Monadnock Building

DETROIT BRANCH
4452 Cass Ave.

16 Years' Experience

Building ROBINSON Electric Welded Steel Furnaces

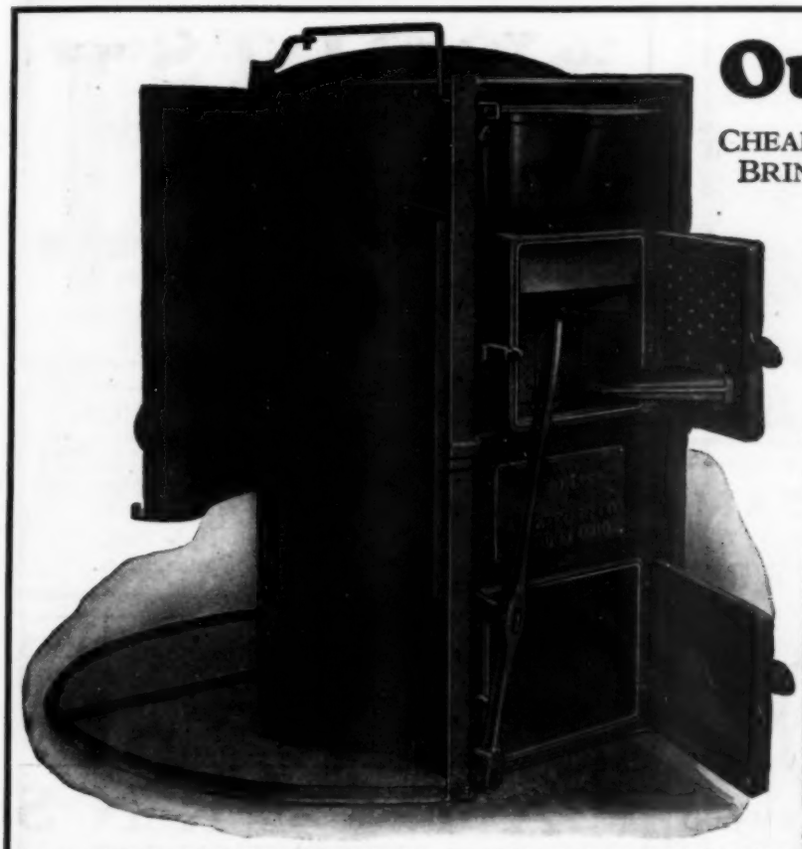
IS real proof of the electric welded joint in steel furnace construction—gas and smoke tight, no joints inside the casing.

Improved radiator construction that takes the strain away from the drum and allows the use of TWO outlets from the drum to the radiator when additional capacity is required.

Your success depends upon REPEAT sales to satisfied customers—our sales plan will do this and bear in mind that the ROBINSON LINE is complete; FORCED AIR, GAS FURNACES, SMOKE CONSUMERS and all metal clothes CHUTE DOORS.

Our folders are salesmen---they are yours.
WRITE TODAY.

THE A. H. ROBINSON COMPANY
CLEVELAND, OHIO



Our Answer:

CHEAP FURNACES AND CHEAP WORK BRING YOU ONLY "GRIEF" AND A CHEAP REPUTATION

"Dinkey" Undersize Radiators are all out of proper ratio and you will be all "Out O' Luck" if you install them! REMEMBER—

"SKIMMED MILK OFTEN MASQUERADES AS CREAM"!

STICK TO THE STANDARD CODE AND USE

ARMSTRONG Guaranteed COLD RIVETED and WELDED FURNACES

Greatly Improved But No Advance in Price

Write Us Today for Our Proposition on QUALITY Furnaces

THE THOMAS & ARMSTRONG CO.,
Dept. 501, London, Ohio

Please send me at once the Armstrong Furnace Catalog and full details of your dealer proposition.

Name .....

Address .....

.....

The *ORIGINAL* COLD RIVETED *and* WELDED FURNACE
POSITIVELY GAS AND SMOKE TIGHT

THOMAS & ARMSTRONG CO.
Dept. 501 — LONDON, OHIO

NIAGARA FURNACES

Abound with features of construction that ensure added comfort, fuel economy, easy operation and long wear.

Our Laboratory tests every step from raw materials to finished product.

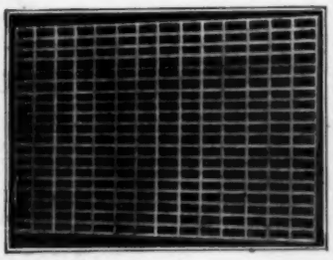
Every furnace is mounted and assembled before leaving our plant to ensure proper fit.

Niagara Dealers know that they are made right and will perform right.

Write or wire us for complete information on Niagara Furnaces at once

The Forest City Foundry & Mfg. Co.
1220 Main Avenue Cleveland, Ohio

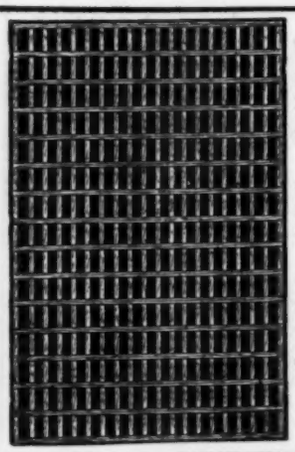
Eaglesfield EXTRA HIGH GRADE WOOD FACES



MADE by special machinery. Finest white quartered oak and High Speed Ball Bearing mechanism insures perfect construction. Specially designed grooving saw cuts all grooves exact size. Eaglesfield Wood Faces are stronger than others — the cross pieces are 1/16 inch deeper than those used in other faces.

Single orders or carloads promptly at fair prices. Write today.

EAGLESFIELD VENTILATOR CO.
918 DORMAN STREET INDIANAPOLIS, IND.



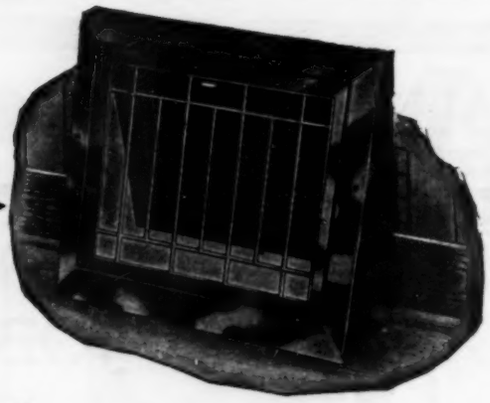
AMERICAN WOOD REGISTERS

are thoroughly inspected and before leaving the factory must come up to the

AMERICAN STANDARD,

which assures you the highest quality.

THE AMERICAN WOOD REGISTER CO.
PLYMOUTH, IND.



Yes, we admit

it's Attractive
it's Efficient
it's Economical
it's the Vol-Yum register

for volume Furnacework
for volume Profits.

Mail coupon today for interesting prices and information.

Rock Island Register Co.,
Rock Island, Ill.

YOU may send your interesting prices and information on Vol-Yum registers.

Name .....
Street No. .....
City and State .....

BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS, CATALOG ON REQUEST.

THE KIRK-LATTY CO.
1971 W. 85th St. Cleveland, O.

CLEAN FURNACES BY VACUUM

FURNACEMEN—Clean furnaces by vacuum. It's quicker, cleaner and more convenient. The Sturtevant Furnace Cleaner cleans thoroughly, cuts cleaning time in half, and gives furnacemen an opportunity to handle more business. It's portable, comes completely equipped with brushes, scrapers, etc. Hundreds of satisfied users. Write TODAY for catalog and information.

Sturtevant PUTS AIR TO WORK — Hyde Park, Boston, Mass.

PATTERNS FOR STOVES AND HEATERS

THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS

FOR STOVES AND HEATERS — FIRST-CLASS IN WOOD and IRON
VEDDER PATTERN WORKS — ESTABLISHED 1835 — TROY, N. Y.

IRON AND WOOD
STOVE PATTERNS

QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

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We can supply you with any book published for the Sheet Metal Worker, Warm Air Heater Installer or Automobile Radiator Repairer.

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to send you a copy of our 10 page book catalog

AMERICAN ARTISAN
AND
HARDWARE RECORD
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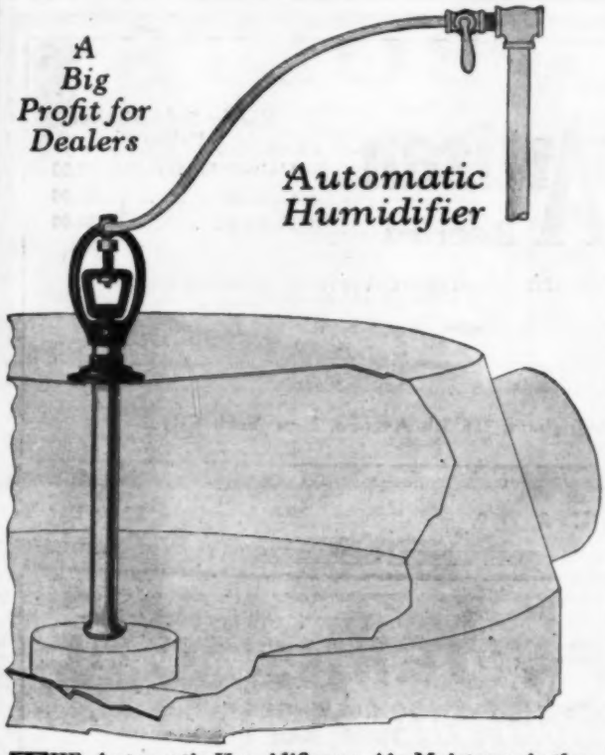
Chicago, Ill.



THE Automatic Humidifier or Air Moistener is the only device on the market today which will unfailingly produce UNIFORMLY PERFECT HUMIDITY!

Write for special prices and terms.

AUTOMATIC HUMIDIFIER COMPANY
408 FREDERICK ST. WATERLOO, IOWA

HEALTHFUL—NATURAL—HEATING

With this the only practical Humidifier on the market

1 *Automatically supplied.*
2 *Sets on top of any furnace.*
3 *Attaches to city water.*
4 *Only Humidifier on the market having a patented Hygrometer and sight feed regulating automatic water supply.*
5 *Easily regulated*

6 *No cost to operate.*
7 *100% Efficient.*
8 *Easy to install.*
9 *Most Economical.*
10 *Everything under observation.*
11 *Durably constructed of cast iron, galvanized*
12 *Guaranteed to please or money refunded.*

ADDS YEARS TO YOUR LIFE!

Write today for prices and circulars — Dealers making big profits

J. ROEMER HEATING CO.
THE BUILDERS' EXCHANGE CLEVELAND, OHIO

Write
For Our
Illustrated
Book of
Order Blanks

You'll find this book handy. It explains how and simplifies ordering Stove, Furnace and Boiler repairs from the—

Largest and Most Complete Stock

NORTHWESTERN
STOVE REPAIR CO., CHICAGO

THERE WILL NEVER BE ANY FRICTION OR CHOKING OF WARM AIR,

between the boot and the register on any furnace job you install if you

USE HANDY FRICTIONLESS WARM AIR PIPE ON EVERY JOB!

Permanently pleased patrons promote permanent prosperity

F. MEYER & BRO. CO.
PEORIA ILLINOIS

Founded 1880

Published to serve the Warm Air Furnace, Sheet Metal, Roofing Stove and Hardware Industries

American Artisan and Hardware Record

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AN ACHIEVEMENT

An explanatory note regarding service to readers of American Artisan. *This paper is now nearing the completion of a half century of service. For almost fifty years it has catered to the needs of the men in the industries which it represents. At no time during its long and successful career has* American Artisan *been in a better position to render complete, adequate service to its readers than it is today. In addition to the matter contained in our regular weekly publication, we maintain Service Departments for the use of our readers. If you have a problem to solve, we courteously invite you to submit it to us for solution. In what better way can we learn of your problems than from you direct?*

AT LAST!

A Really Efficient and Economical UNIT HEATER

Majestic REGISEAT HEATER

THE GREATEST contribution to economical heating in a decade —the new Majestic Regiseat Heater. Regiseat is the development of an entirely new idea in a re-circulating unit heater. It is simplicity in itself, yet efficient beyond belief. This remarkable unit heats every room of a four, five, six or even seven room house—depending upon the size of unit and type of installation. Not to be confused with a "room heater"—Regiseat keeps the dirt and ashes in the basement where they belong. Regiseat is easily and quickly installed, has very low fuel requirements and sells at a figure that means profitable, volume business for you. Just mail the coupon below and learn all about Regiseat. Mail it NOW!

THE MAJESTIC COMPANY :: :: HUNTINGTON, INDIANA

MAIL THIS NOW
for **THE NEW SALES OPPORTUNITY IT OFFERS YOU**

THE MAJESTIC COMPANY, HUNTINGTON, IND.
Please send full information about the Majestic Regiseat Heater

Name _____

Address _____

Sell a Carload of Steel Furnaces in 1927

BY setting your goal for your 1927 business good and high and still within possibilities, you will bring out the best that is in yourself and the best of co-operation from all your associates. The public will respond as well, and you will be surprised at the publicity value of the announcement of the arrival of your first carload consignment of Marshalltown Steel Furnaces. Make a CARLOAD OR BETTER your goal for 1927.

You Can Do It Easily

with our Co-operative Merchandising Plan

By taking on our Marshalltown Steel Furnace Lines and adopting our Co-operative Merchandising Plan, you will have the three all-necessary elements to a profitable business in them this coming season.

First—A Furnace that you can back with your and our strongest Guarantee of Satisfaction—Design, Material, Workmanship—all tested right and true. Rightly, carefully installed according to the National Code, it cannot fail you.

Second—A Special Franchise Co-operative Sales Plan that enables you always to make deliveries and settings promptly. This builds confidence and good will with your customers and makes turnover more frequent and profitable.

Third—Valuable assistance in effective publicity and advertising helps to secure new prospects for sales and developing them into actual orders on your books.

Send for this Plan today—No Obligation

Use Your Business Letterhead or a handy Government Post Card

Address New Business Department

Marshalltown Heater Company

THE MARSHALLTOWN LINE

Marshalltown, Iowa

THE CARLOAD LINE TO GREATER FURNACE PROFITS

American Artisan and Hardware Record

Vol. 93. CHICAGO, APRIL 2, 1927 No. 14.

First Row Left, Reading From Fore to Aft, W. R. Haines, Instructor; William Newton, Glenn Baird, Paul Meister, Henry Black, Professor Jenks, Sanitation Expert, and Paul Slegel. Center Row, Reading From Fore to Aft, George Ensign, Walter Dempster, Robert Irwin, Robert Kirby, Merill Cowman. Extreme Right, George Harrell, Richard Darbyshire, Charles Dow, Orin Cessna, Edwin Graham, William Jennings, and Gilbert Thomson

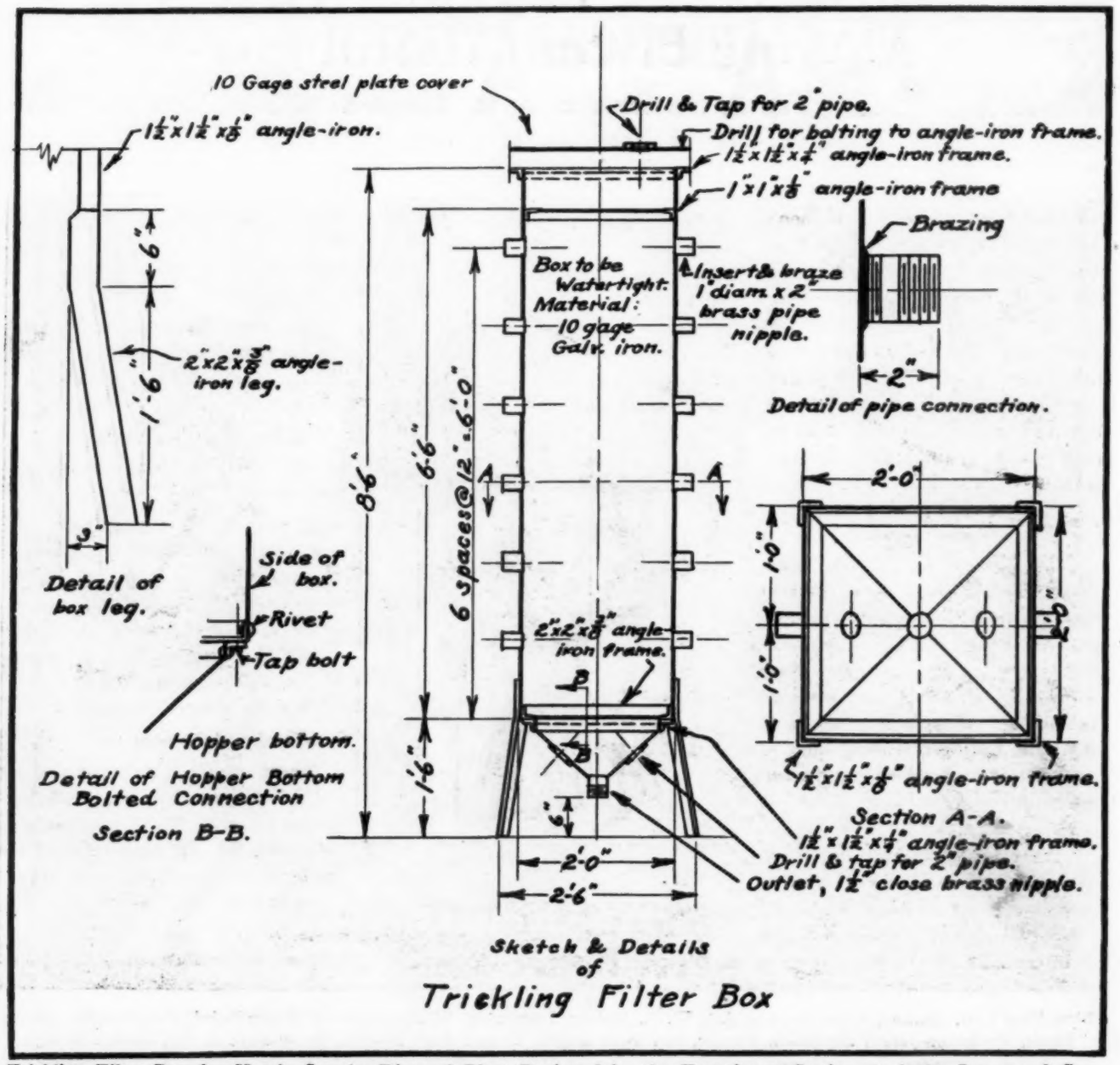
Ames, Iowa, Sheet Metal Students Construct Large Trickle Filter

W. R. Haines, Manager Ames Furnace and Tin Shop, Is Sheet Metal Instructor at Iowa State College

By George J. Duerr

THE sheet metal industry has not been overlooked or neglected by the great wave of vocational education that began sweeping the country immediately after the present immigrant exclusion laws went into effect. Classes in sheet metal work were instituted in night school, high school and, in many instances, in the college curriculums of educational institutions all over the country, and for the most part these classes have and are now proving their unquestionable value to the industry.

The accompanying illustration shows the sheet metal shop and some of the students that are taking the sheet metal course at the Iowa State College, Ames, Iowa. A great deal of very important sheet metal work is being done in this sheet metal shop. For instance, at the present time the sheet metal



Trickling Filter Box for Use in Sewage Disposal Plant Designed by the Experiment Station at Ames, Iowa, and Constructed by Students in Sheet Metal in the College Sheet Metal Shop Under the Direction of W. R. Haines, Instructor

shop is working on some large filters for the disposal of sewage. These filters, which are shown in the background in the illustration and the drawing for which appears on the opposite page, were designed by the experiment station located at the college at Ames. They are constructed of 10-gauge galvanized iron by the students of the college sheet metal shop.

These filters are to be tested at the college when they are completed and the results of the tests will be sent out to municipalities desiring this information.

W. R. Haines, who is the first man on the extreme left in the illustration, is the instructor of the sheet metal shop. Mr. Haines is not only an instructor in sheet metal at the college at Ames, but is a practical sheet metal contractor as well. He is the manager of the Ames Furnace and Tin Shop, 618 12th street, Ames, Iowa, and is an enthusiastic member of the Iowa Heating and Sheet Metal Contractors' Association. He is a thorough advocate of high quality work at all times and also believes in charging prices high enough to permit the installation of quality work at all times.

When you stop to consider that work of the type which Mr. Haines is doing in the way of instructing classes in sheet metal at the Ames, Iowa, college is being carried on in practically all parts of the country, not alone in schools and colleges, but in many individual shops as well, is it not perfectly apparent that the sheet metal industry is going to be placed upon a much higher plane than it has ever before enjoyed within the next few years?

Progressive sheet metal contractors realize as they never have before the value of training men in their own organization.

Sheet Metal Dan Explains How He Is Making Better Contractors

Is Trying to Save Brother Contractors Some Hard Knocks He Has Received

SHEET METAL DAN, of the Distributors' and Salesmen's Auxiliary and Sheet Metal Contractors' Association of Pennsylvania, has made a lot of wise statements for the successful conduct of the sheet metal business. Eight of his talks have appeared in AMERICAN ARTISAN, and the ninth is presented herewith, in which Sheet Metal Dan talks about making better contractors.

Sheet Metal Dan Sees Better Times Ahead

"Dan, you've been taking some pretty straight shots at us contractors and the sheet metal business in general, but I don't see yet what you're driving at. You must have some point to make or you wouldn't be talking. What is it? Out with it." Jim had been reading some of my talks as they came out and wanted to know what they were all about.

"Well, for one thing, Jim," I explains, "I've simply been trying to save you fellows a lot of mistakes."

"Mistakes, is it?" echoes Jim. "Do you mean you've been trying to spare us some of the hard knocks you got?"

"That's it exactly," I agrees. "That's the point I've been making all along. Hard knocks are good enough in their way, but most people get too many of 'em, to my thinking. A better way is to compare notes with the other fellow and profit by his experience."

"So that's why you've been talking about credit and overhead and cut-price jobs, and the ins and outs of the sheet metal business generally," observes Jim. "Do you mean to say the contractors are weak on these points?"

"Oh, I wouldn't go so far as to say that," says I, setting him straight. "But I do think the contractors would get more out of their business and make it easier for everybody concerned — architects and builders included—if the contractors knew enough not to give in to conditions that were against them. There's nothing like education about business principles to stiffen a man's backbone and make him ask for what really belongs to him."

Sheet Metal Dan Sees Better Times Ahead

"All the same, Dan," puts in Jim, "you must have some axe to grind or you wouldn't be talking to us. Honest now, haven't you?"

"I tell you I haven't, Jim," says I, going back at him. "I'm just a hard-working, old-time contractor like yourself. I've seen the sheet metal business improve a lot in my day. I hope to see it improve a lot more. But I don't think it will get better unless we take hold and improve it ourselves."

"Well, how are we going to improve it, anyhow?" asks Jim, pinning me down.

"Just the way I've been telling you all along. Make better business men of the contractors and the industry is bound to come up to their level. Get them to come into the Sheet Metal Contractors' Association of Pennsylvania where they can improve things from the inside. That's where improvement always comes from. And so, it's up to us contractors. *We're* the insiders, you know."

"Fair enough," agrees Jim.

The talks that have already appeared are:

1. Keeping the Costs Down. 2. Figuring a Fair Profit. 3. A Salary for the Boss. 4. How to Figure Overhead. 5. Passing Up a Cut-price Job. 6. Choosing the Right Jobs. 7. Collecting Bills Promptly. 8. Learning from the Other Fellow. 9. Making Better Contractors.

Watch for the next one.

Sheet Metal Dan's address is 7253 Frankston Avenue, Pittsburgh, Pennsylvania. Write him and tell him whether you have enjoyed his talks in the past. He will appreciate it and so will we.

Finds Advertisement and Reading Service Very Adequate

To AMERICAN ARTISAN:

I am mailing you herewith checks amounting to $8.10 for which please renew my subscription for three years and send me Gray's "Perfect Elbow Patterns" sets 1 and 2.

Note to editor: I think AMERICAN ARTISAN information service alone is well worth the subscription price. If you want to know where to get any article used by sheet metal or furnace men, just glance through the advertising pages of AMERICAN ARTISAN.

Yours very truly,

H. T. PRICHARD.

308 Eighth Street,
Hoguiam, Washington.

Developing Patterns for Irregular Transitional Sheet Metal Elbows

Transition Shown Is Somewhat Out of the Ordinary Run, But Is Often Met With

By O. W. Kothe, Principal St. Louis Technical Institute

IN this problem we have a rather unusual fitting in that the elevation is made to fit in a given position and the plan has an offset so that it is flat on one side and, in addition, a tee is placed in the heel of the transition.

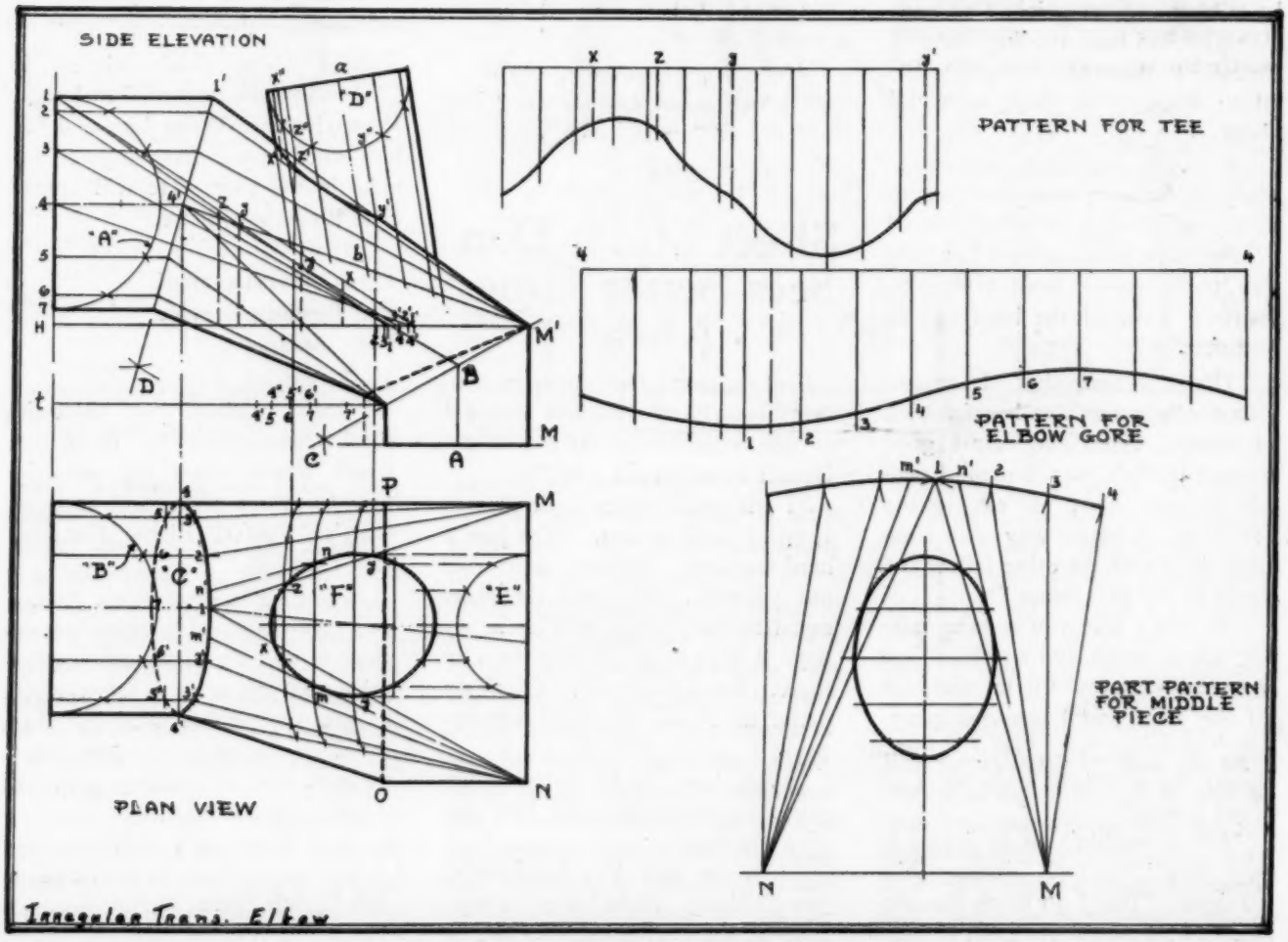
The best way to handle a fitting of this kind is to first draw axis line of elevation A-B-4′-4 and then from this angle bisect the miters, as at C and D. Then we can draw the half section "A" and also the plan for the rectangle M-N-O-P for the lower base.

In our case it is assumed the pipe has been in position and we wish to connect to this sized pipe and afterwards a tee intersects the heel. This, of course, reduces the efficiency, and if a larger rectangular pipe were desired it could easily be built on miter line shown by dotted position from M′ to throat as shown.

With the aid of section "A" we draw elevation lines and then begin to develop plan view, transferring section "A" with all its points as "B," and we develop the ellipse "C." After this we place the tee branch "D" with section in position by first drawing axis line a-b.

We draw lines from section "D" to pass triangular lines in heel of elbow and then we drop them into plan and thereby develop those parabola lines shown to pass over the heel of plan. By transferring section "D" as "E" we can then develop the plan view of opening "F."

As this opening passes between the lines M-1 and M-2, we draw a line tangent with the opening to intersect, as at n and m. This enables us to place our proper positions in the pattern as shown. By carrying these points in plan up to the elevation crossing lines from "D," we establish the miter line between tee and transition which enables us to project pattern for the tee and also develop pattern for



Patterns for an Irregular Transitional Elbow

cylindrical elbow gore.

Before the pattern for middle piece can be developed, we must obtain true lengths, but owing to lack of space we have laid these two lengths right over elevation, because the points 1-7 serve as altitudinal points in diagram of triangles when M′ and the throat is carried over, as H-t.

By picking plan lines M-1. M-2, etc., set them as H-1-2-3, etc., we can draw lines to proper altitudinal point and so arrive at our true lengths.

The same treatment may be followed for the entire transition; this then enables us to use lines to start pattern, as M-N-1.

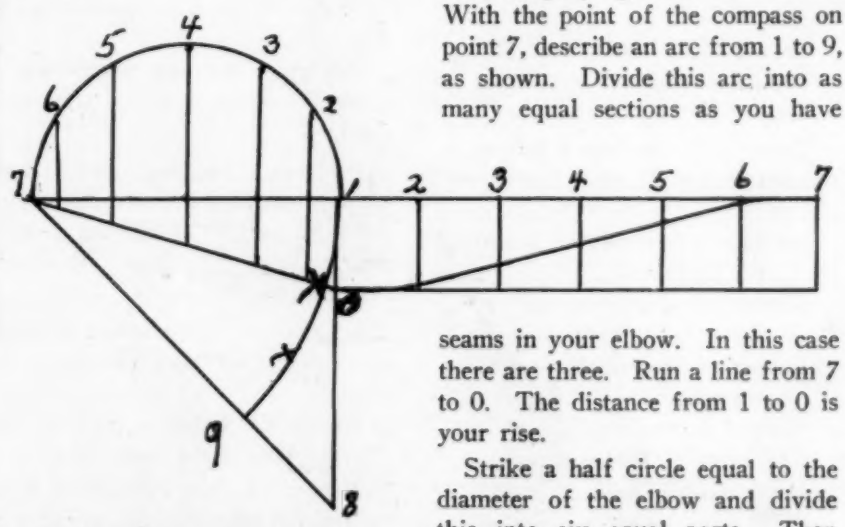
After this we carry on process of triangulation in usual way, using girth for the round end from miter line cut 1-2-3-4, etc., for the elbow gore and for the base we use the lines of plan, as M-N, for the heel and throat and the miter line of elevation for the side. By following up the process of triangulation and working from one point to another, we can soon develop pattern as we show, after which opening can be developed also if desired.

Describes Simple, Practical Method of Elbow Pattern Cutting

For Use of Beginner, With Limited Experience in Pattern Cutting

By Fred Schuster

I AM submitting a short article on practical elbow pattern cutting for the benefit of American Artisan readers. It is intended mostly for beginners who have had only limited experience in this type of work.



Graphic Illustration of Fred Schuster's Idea

By this method the beginner will be able to lay out patterns of any diameter and any number of pieces. As an example, let us take an 8-inch elbow of four pieces. The first thing to find out is your rise; that is, how much higher is the first section of your elbow at the shoulder than at the throat. This is determined as follows: and should be carefully studied.

Mark on your metal or paper a right angle triangle, represented on the acompanying sketch as 1—7—8. With the point of the compass on point 7, describe an arc from 1 to 9, as shown. Divide this arc into as many equal sections as you have seams in your elbow. In this case there are three. Run a line from 7 to 0. The distance from 1 to 0 is your rise.

Strike a half circle equal to the diameter of the elbow and divide this into six equal parts. Then draw lines through to the miter line, as shown.

We are now ready for the stretchout. Our next step is to determine the circumference of the diameter. Of course, we can easily transfer the half circle, 1—7, and use it as one-half of the circumference, but it is advisable to know how to find it mathematically as well as by table calculation.

In order to find the circumference of a circle, we multiply the diameter by 3.1416 and you have the circumstances of a circle of that diameter.

Divide the circumference into six equal parts. From the intersections thus provided draw lines to your miters, as shown. The line from 1 to 7 is the stretchout, or rather one-half of the stretchout.

Further elaboration is not necessary. Study the drawing and remember, in order to find the circumference of a circle, multiply the diameter by 3.1416.

Armco Has Pamphlet on Revelations on Seacoast and Brine Conditions

The American Rolling Mill Company, Middletown, Ohio, has produced a new and attractive little booklet called "Revelations." The publication concerns itself with the use of galvanized iron for sea coast and brine conditions. The book is so divided that it treats sea air, sea water and brine in three separate departments, making these departments full of interest.

In the first place a thorough demonstration of the process of electrolytic action is given, explaining indirectly why iron with impurities in its make up does not resist corrosion.

The results of many tests under actual sea conditions are also given, which are interesting and self-explanatory. Every reader of American Artisan who wishes to get clearly in his mind why certain metals when brought together cause electrolytic action, should not neglect this opportunity to have one of these booklets sent to him. All that is necessary to obtain one of them is to send your name and address to American Artisan or to the American Rolling Mill Company, Middletown, Ohio, with the request that "Revelations" be sent to you. The information that you receive therefrom will far more than repay you for the cost of the postal card.

Texans Will Arrange Sheet Metal Golf Tournament at Convention

If Sufficient Men Signify Their Desire to Participate—Make Known Your Wants

THE time is drawing near for the big "noise" down in Dallas and the Texas sheet metal men are completing plans for one of the biggest receptions any delegation of sheet metal men has ever received, according to the latest information from Secretary Harry Stanyer's office.

Here's a message from Secretary Stanyer himself to the sheet metal contractors:

"To the Sheet Metal Contractor:

"Be sure when buying your railroad ticket to ask for a certificate receipt and this will mean a considerable saving to each and every delegate who is coming to Texas for the Big Convention. If you are not familiar with the certificate plan, ask your ticket agent for full details.

"Arrangements have been made with two of the country clubs for those who wish to play golf and if enough of you will send in your names ahead of time we will arrange a sheet metal contractors' tournament which can be held in the morning or evening, before or after business sessions. Let us hear from all of you who wish to enter.

"We are going to devote a lot of time to the Question Box so if you have any problems you would like to hear discussed have them ready to present to the convention.

"A tip from the chairman is, bring a heavy wrap with you for we sometimes need them in April even in Texas. Not often that we do but better come prepared."

The program of events as these will be carried out, too, is prepared and is given below.

Monday, April 25, 1927

6:00 p. m. Board of Directors and Trade Development Committee meeting.

Tuesday, April 26, 1927

Morning Session.

9:00 a. m. Registration.

Opening of convention by Harry Stanyer, chairman of Convention Committee.

Singing, "America."

Invocation by Dr. L. N. D. Wells.

Address of welcome, by J. J. Collins, City Attorney, an ex-sheet metal worker.

Response, by Joseph C. Gardner, National President.

Report of convention committee.

Turning the convention over to the national president by chairman of the convention committee.

Appointment of convention committee:

Credentials committee.
Resolutions committee.
Auditing committee.
Nominating committee.

1:30 p. m. Convention will be called to order promptly at time stated.

Report of national president.

Report of national secretary.

Report of national treasurer.

Report of Vocational Education committee, by Louis Luckhardt, chairman.

Address, "Association Benefits," by L. W. Hickey.

Report of slogan committee, by N. A. Lichty, chairman.

Report of credentials committee.

Question box.

General discussion.

8:00 p. m. Theatre party.

Wednesday, April 27, 1927

9:30 a. m. Call convention to order.

Report of Trade Development committee, by George Harms, chairman.

Address, "Business Ideals and Business Policies," by George L. Bennett, director Building Trades Extension, Sheet Steel Trade Extension committee.

Question box.

General discussion.

Afternoon Session

1:30 p. m. Call convention to order.

Report of Warm Air Furnace committee, by Guy A. Voorhees, chairman.

Address, "The Warm Air Heating Industry," by E. B. Langenberg, president, National Warm Air Heating and Ventilating Association.

Address: "Ventilation," by J. E. Matthews.

Address: "Possibility of Enforcing the Standard Code in the South," by V. H. Parks.

Report of resolutions committee.

Question box.

7:30 p. m. Banquet in Adolphus Hotel dining hall. Dancing until 12:30.

Thursday, April 28, 1927

9:00 a. m. Call convention to order.

Report of Auditing committee.

Report of associations, state and local.

Address, "Helping Ten Thousand Sheet Metal Contractors," by John F. Gowen, architectural engineer, Copper & Brass Research Association.

Report of Overhead Expense committee, by Walter Tinney, chairman.

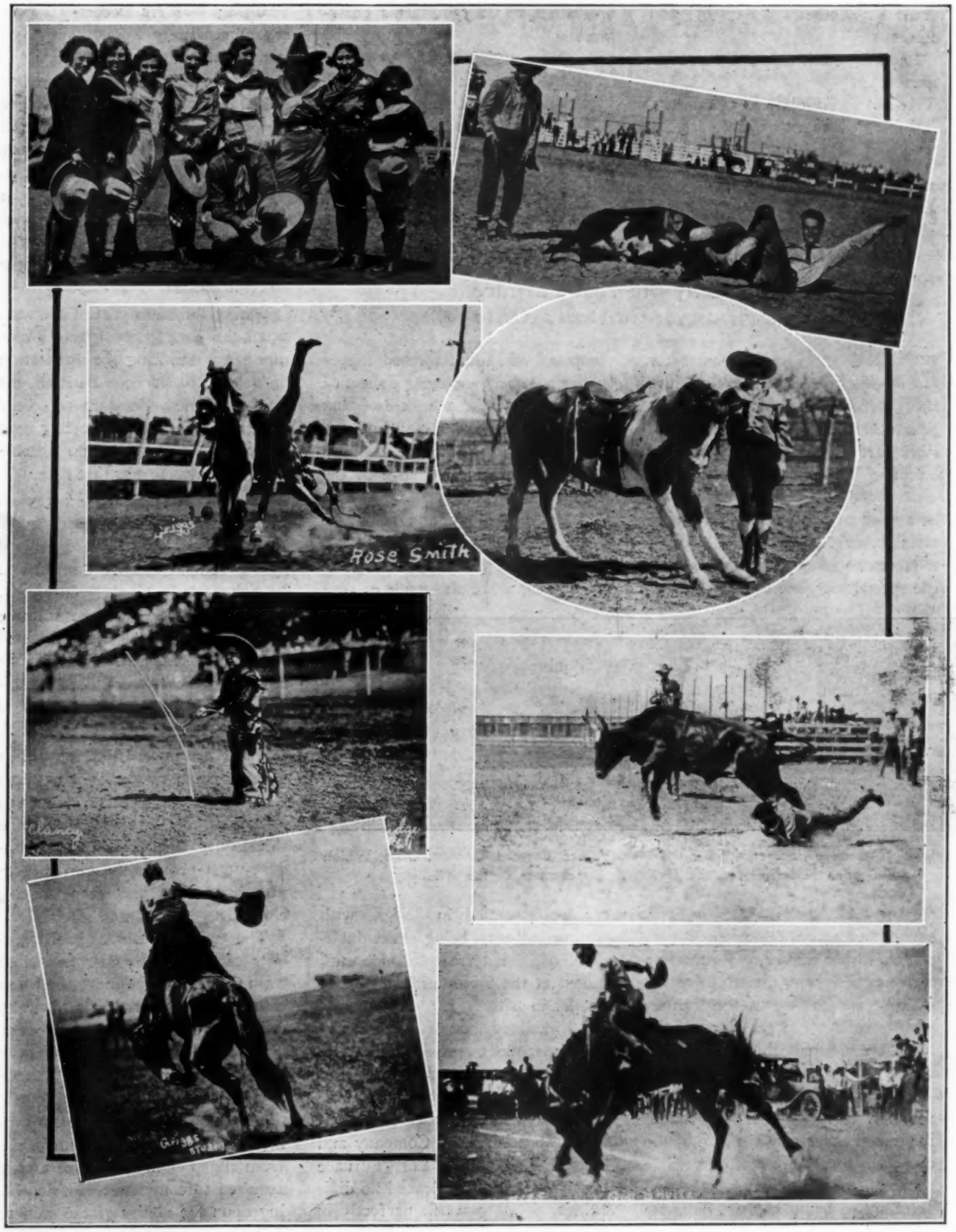
Report of Labor committee, by W. F. Angermyer, chairman.

Report of Fire Prevention committee, by John Bogenberger, chairman.

Report of Sheet Metal Cornice and Educational Publicity committee, by Joseph E. Mattingly, chairman.

Report of Trade Relations and Policy committee, by W. C. Markle, national secretary.

Address, "Are We Buying or



Some of the Performers of the Bar "C" Ranch to Be Seen at the Rodeo of the National Convention of Sheet Metal Contractors, Dallas, Texas, April 24 to 29, 1927

Selling Sheet Metal Contracts," by Edwin A. Scott.

Election of officers.

2:00 p. m. Rodeo and barbeque. Official picture will be made in rodeo arena.

8:00 p. m. "A Surprise."

Friday, April 29, 1927

9:00 a. m. Call convention to

order for another full days of good things.

Reading minutes of Thursday's session.

Report of Resolutions committee.

Report of board of directors.

Report of Committee on Standardization, by George Harms, chairman.

New business.

Unfinished business.

Selection of next convention city.

Reading of minutes of final session.

Palace Theatre Marquee, Canton, O., Reflects Credit to Sheet Metal

Erected by the Yost Furnace Company, Canton, Ohio

EVERY sheet metal contractor knows the extent to which a sheet metal marquee adds to the appearance of a theater, department store front or other mercantile building. Therefore the sale and installation of these marquees should be a good business bet for the sheet metal contractor.

Herewith is shown photograph of the special marquee constructed for the new Palace theater recently opened in Canton, Ohio.

Special Marquee Constructed for the New Palace Theatre, Canton, Ohio, Which Adds Materially to the External Appearance of the Building

This rather unique and attractive marquee adds very materially to the exterior appearance of the theater, which, while not large, is one of the most beautiful in this part of the country.

There are a number of special and peculiar features not apparent to the casual observer. The size of the marquee is 12½x46 feet, the frame proper being of structural steel; all sheet metal being copper, designed and fabricated to the architect's special details, all ornaments being modeled and dies made at the Eller plant, approximately 1,000 pounds of copper being used.

The ceiling of the marquee is composed of special formed copper border members enclosing a sheet of hard asbestos with a light dropping through the center, there being 150 of these panels; there are also 225 lights in the border or edge of the ceiling, making a total of 375, which produces a brilliant and attractive effect.

The corner posts supporting the two end signs are also made of copper, spiral fluted in design, with ornamental caps, being exact duplicates of the terra-cotta columns, shown at the windows but slightly smaller in size.

All in all it is one of the most unusual marquees erected in that locality and has attracted widespread attention and admiration. The various parts were fabricated by the Eller Manufacturing Company and erected by the The Yost Furnace Company, who experienced no difficulties, as all parts fit perfectly in their places.

It is a fact that many sheet metal dealers could secure much profitable marquee work if the proper effort was made to get it and work with the architects.

Training Welders Becoming Increasingly Important in Business

The training of welders has assumed an importance in the scheme of organized business unheard of five years ago. In the following article W. L. Warner, of the Industrial Engineering department of the General Electric Company, has given an insight into the method of training welders employed by the General Electric Company:

During the latter part of the war, when the Emergency Fleet Corporation was studying the application of welding to ship construction, the lack of trained operators was very keenly felt. Electric welding was then in its infancy and no suitable data were available at that time.

In order to assist the Emergency Fleet Corporation in extending the art, a welding school was organized by the General Electric Company at its Schenectady plant. Since that time this school has been training men in the art of welding and is still operating to that end. Facilities are now available to accommodate approximately 16 student welders at one time.

There are no charges for tuition and the company does not pay any wages. Welding accessories such as electrodes, holders, and hand shields are furnished, but the student must provide the gloves, goggles, apron and necessary working clothes.

The training course itself consists of a series of lessons which train the student to understand how different types and kinds of welds are made, from the simplest operation of putting beads on plates to the more complicated "T" welds, angle welds, and building up operations. Some thirty-four lessons are included in the regular course, and from six to eight weeks are usually required to complete them, depending upon the ability of the student. A competent instructor is in charge and each lesson must be completed in a satisfactory manner before the next one is started. Should time permit and the student be sufficiently interested, he is given a short

course of instruction in automatic welding.

The advantages of this Welding School are somewhat difficult to determine, but we do know from occasional letters received from students who have taken the welding course, that a certain volume of sales can be definitely traced to the familiarity with General Electric equipment which these students secured while taking the course. There is, however, a further and larger but intangible benefit resulting from training men to be good welders; namely, the broadening of the electric welding field, and the greater and more reliable use of electric welding equipment wherever it is possible.

St. Louis S. M. Men Want Delegates to Dallas Convention to Join "Special" at St. Louis

Will Entertain All Comers With Trip Around St. Louis and Banquet

THE Transportation Committee of the joint associations of sheet metal contractors in St. Louis are inviting all sheet metal contractors en route to the Dallas convention to join them at St. Louis where a special train is to be made up for the trip to Dallas. Here is the latest word from Jules Gerock, 1252 South Vandeventer Avenue, St. Louis:

"On April 24th the joint Associations of Sheet Metal Contractors of St. Louis will make the pilgrimage to Dallas, Texas, to attend the convention of the National Association of Sheet Metal Contractors. We have chartered a special train via the Missouri Pacific Railroad, leaving St. Louis, Missouri, at 9:05 a. m.

"All sheet metal contractors, their families and friends, that can possibly do so are urged to go to Dallas by way of St. Louis. Join our party here and make the pilgrimage with us.

"Those going by way of our city will please write or wire our secretary of the Transportation Committee so that suitable provisions can be made for their comforts.

"Saturday, April 23rd, will be devoted to sight-seeing, etc., with a banquet in the evening to finish up the day.

"We should have the names of those coming here not later than April 18th. You will please address our secretary, G. A. Frankel, 6281 Bartmer Avenue, St. Louis, Missouri.

"You are welcome. We want you. Do not forget our 'leaving time'—Sunday, April 24th, at 9:05 a. m., via Missouri Pacific Railroad, and do not forget to have that part of your ticket which carries you from St. Louis to Dallas read 'Via Missouri Pacific Railroad to Dallas from St. Louis, Missouri,' and by all means request a certificate from the railroad company so that you may get half fare rate for the return trip.

The officers of the St. Louis association are as follows: President, Rudy Meier, 7321 Manchester Avenue, St. Louis; Secretary, G. A. Frankel, 6281 Bartmer Avenue; Treasurer, A. P. Faessler, 3144 Easton Avenue; Sergeant-at-Arms, E. D. Cuddy, 4971 Easton Avenue.

The directors are William Schwartz, 726 North Euclid Avenue; Ben Kolbenschlag, 3616 North Grand Avenue; H. W. Symonds, 3121 Minnesota Avenue; and Jules Gerock, Jr., 1252 South Vandeventer Avenue, St. Louis.

Metal Branch National Hardware to Meet at Cleveland May 5 and 6

The sixteenth annual meeting of the Metal Branch of the National Hardware Association will be held at the Cleveland Hotel, Cleveland, Ohio, May 5 and 6, 1927, according to George A. Fernley, secretary of the National Hardware Association.

The new chairman, F. O. Schoedinger, of F. O. Schoedinger, Columbus, Ohio, will preside at the Cleveland meeting, and it is the intention and desire of the committee on arrangements to make the forthcoming meeting one of the most interesting and successful gatherings ever held.

Mrs. Howard L. Mason Dies After Appendicitis Operation

Friends of Mr. and Mrs. Howard L. Mason, the former secretary and city salesman of the Carr Supply Company, Chicago, will be grieved to learn of the sudden and untimely death of Mrs. Mason, which occurred March 15 following an operation for appendicitis.

Mrs. Mason was the oldest daughter of Mrs. George B. Carr. In addition to her mother, she is survived by her husband and two children, Ruth, 12 years, and John, 7 years.

Address of Makers of Red Wing Stone Drinking Fountains.

From Louis I. Drackert, Tipton, Missouri.

Please give me the address of the makers of the Red Wing stone drinking fountains.

Ans.—Red Wing Union Stoneware Company, Red Wing, Minnesota.

"Farquhar" Furnace.

From Oscar C. Hultberg, care General Sheet Metal Works, 1526 Seventh Street, Rockford, Illinois.

Please advise me who makes the "Farquhar" furnace.

Ans.—Farquhar Furnace Company, Wilmington, Ohio.

"Quiet May" Oil Burner.

From Oliver Lowery, Meridian, Mississippi.

Please advise me the address of the "Quiet May" oil burner.

Ans.—May Oil Burner Company, 35 East Biddle Street, Baltimore, Maryland.

Random Notes and Sketches
By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

Speaking of unlucky days, Harry Rhodes, newly elected president of the Michigan Sheet Metal and Roofing Contractors' Association, said:

"It was the day before my wife was due to return from a two-week absence.

"At the office I got a telegram saying that she would be home a day earlier than she expected. I knew darned well that if I didn't get home and put a few things under cover, I wouldn't have any home.

"The boss is very strict about absence.

"'Boss,' I said (it was the best stall I could think of), 'I've picked up a headache. I don't like to quit work for the day, but I'll have to get out for just a few minutes to get me some aspirin. Will that be all right?'"

"'It won't be necessary,' he said, opening his desk. 'Here's a whole bottle of aspirin.'

"Groans and moans!

"That was my unlucky day!"

* * *

A Mighty Sick Scotchman

An Aberdonian, hearing that a doctor charged 6 shillings and 6 pence for a first consultation and 2 shillings and 6 pence for a second, went to him and said:

"Here we are again, doctor."

"I don't remember seeing you before," said the doctor.

"Oh, yes, I was here last week," lied Sandy.

"Oh, indeed, I had forgotten. How are you keeping?"

"Not at all well, doctor, not at all well."

"Let me see," replied the doctor, "just continue your last prescription for another week. That will be 2 shillings and 6 pence, please."

* * *

I had a letter one day this week from George G. Fischer, manager Chicago branch of the Abram Cox Company. This letter contained a post card which Mr. Fischer had received from Jack Toomey, of the Rathbone Sard Company, from China, where Mr. Toomey is at the present time. Every one who has anything to do with the sale of stoves knows Jack Toomey, and I think it was very kind of Mr. Fischer to extend us the privilege of publishing this little item about Mr. Toomey. I heartily agree with Mr. Fischer in expressing the hope that Mr. Toomey is not experiencing any harm or difficulty because of the unsettled conditions in China at the present time. I also want to thank Mr. Fischer for his courtesy.

* * *

Fred Goodall, senior partner of the G. & S. Stove and Furnace Company, Chicago, defines man as follows:

"Man is something that can see a pretty ankle three blocks away while driving a motor car in a crowded city street, but will fail to notice, in the wide, open countryside, the approach of a locomotive the size of a schoolhouse and accompanied by a flock of forty-two box cars."

Well now, Fred, that certainly is pretty harsh on the poor old bread winners, but I believe that you could lighten your burden considerably by sending that one in to the *Tribune's* Snappy Kum Back Contest.

* * *

I've heard a great many stories about the conscientiousness of some furnace men and the good results they have obtained by their scrupulously painstaking efforts, but I claim that Frank Umpleby, of Pana, Illinois, is fully entitled to the brown derby, the glass hat or the privilege of writing his own prescription for conscientiousness in his attention to business and the welfare of his customers. J. A. Thurlow, Western sales manager of the Portland, Oregon, branch of the Lennox Furnace Company, called my attention to the following newspaper clipping:

"Pana, Illinois, March 25.—Rising from his bed in the middle of the night, Frank Umpleby, local warm air furnace installer, went to his garage in pajamas, drove his automobile 12 blocks to the home of a friend. Entering without warning, he announced to John Atkinson, "I've got to fix that furnace." Atkinson, amazed, discovered Umpleby was asleep and awakened him." I agree with Mr. Thurlow in calling this a real inspiration to a lot of furnace installers that I know.

* * *

I had the pleasure of a visit on Thursday afternoon of this week from Tom Pearson, traveling representative for Thomas & Armstrong Company, London, Ohio. Mr. Pearson was as full of the . . . I mean the old Harry as ever, and is "cooking" up something good for presentation at one of the coming warm air meetings that is more than warm, it's hot. I don't dare tell which meeting it is, so in order not to miss it, you'll have to attend them both.

* * *

Before H. O. McElwain of Elkhart, Indiana, had reached his present affluent stage, he was a thrifty farmer. He wasn't stingy. He was merely economical in the management of his big farm and all his hired hands. One morning, while repairing the curb to his underground cistern, he very unexpectedly fell in, pulling the rope in with him as he went down. Having always been a good swimmer, he had no trouble in keeping afloat; but the water was cold and he couldn't climb out. Mrs. H. O. was helpless alone and without a rope.

"H. O."! she yelled excitedly down to him. "I'll ring the dinner bell so's the boys can come in and pull you out."

"What time is it?" he yelled.

"'Bout eleven o'clock."

"No, dang it; let 'em work on till dinner time. I'll just swim around till they come."

The Editor's Page

Taking Uncertainty Out of Warm Air Heating

IN THE March 19, 1927, issue of AMERICAN ARTISAN Sam J. Sorensen, 1336 North Central Avenue, Chicago, gave 18 pointers for the guidance of other warm air furnace installers. Mr. Sorensen is a successful warm air furnace installer himself and has been for a good many years. Therefore what he has to say on the subject is of value to anyone who wishes to enjoy a like success in the warm air heating industry.

If every warm air furnace installer now doing business would read these 18 pointers, thoroughly digest them and pass them on to his workmen, the greater part of his furnace troubles would be at an end.

These 18 points concern themselves entirely with the installation of the job itself, however. There is another side of the problem, too. This concerns itself with the practices employed by the installer before he has secured the contract from the home owner.

Edward N. Stahler, Secretary of the Cook County Sheet Metal Club, Chicago, had something very definite and concrete to say to the Iowa sheet metal men last week on this other side of the problem. He said that the day of pretense in the warm air heating industry has passed. It is no longer possible for an installer to sweep through a dwelling from top to bottom, pretend to make a few imaginary notes and figures and then with the speed of a rapid calculator tell the home owner that he will install a furnace for a given price.

The home owner today is asking questions about the heating system. He wants to know what he is going to get for the money he spends. The installer who goes to the home owner today with the idea that the latter can be bluffed into signing a contract for a heating system without a definite knowledge of what it consists is only kidding himself.

The bluffing days in the warm air heating industry are over. From now on warm air heating is going to increase in popularity by leaps and bounds, but the men who are going to do the installing of these heating systems are men who know their business; who know how to figure accurately the heating requirements of the dwelling they are asked to heat; who know how to build up an organization whose work will stand the test of Sam Sorensen's 18 points, and last but not least, who know that no business can be a success until it operates with a fair profit.

It is such men as Sam Sorensen, Edward Stahler and hundreds of others of the same calibre that could be mentioned here that are the builders in the warm air heating industry. These men, the furnace installers, are meeting the public; they are the connecting link between the manufacturer and the public and the impression they make with their work and method of doing business is the impression that the public has of the industry as a whole.

Therefore, in the final analysis, it's up to the warm air furnace installer to see to it that the impression the public gets of the industry is the right one. They should so conduct their work through their organization that every furnace installer in business is taught to figure and install jobs so that when these jobs are completed they will be a credit to the installer and the industry.

Making Collections Easily

THE collection of bills appears to be one of the most frequent stumbling blocks encountered by the sheet metal contractor. One of the most probable reasons for this is that the contractors themselves do not issue their statements promptly upon completion of the work.

It is a well-known fact that when a customer lets a contract for work to be done he immediately begins making arrangements for the payment of the work on completion. Therefore, if the statement of the bill is rendered him immediately after the work is done, in nine cases out of ten the bill will be paid immediately, or at least it will be one of the first to be paid when the monthly checks are sent out.

On the other hand, if the contractor neglects to send the statement at the completion of the job, the owner cannot pay the bill promptly, other bills come in and are paid and yours is lost sight of for the moment.

The honest customer likes to know how his account with you stands at all times. If the statements of amounts due from them are sent out promptly or at regular periodical intervals, there will be very little difficulty in getting the money promptly.

The promptly issued statement, in most cases, brings a promptly paid bill. This permits you to deposit at your bank the money with which you can discount your own bills and in that way save the discounts. Have you ever tried averaging discounts saved for a period of one or five years? In a spare moment take a pencil and jot down the discounts gained or lost through prompt payment or failure to pay promptly. Then figure the size sheet metal contracting job that you have had to complete in order to make a similar amount in profit. You will be surprised how those discounts can mount up during the year or five-year period.

Send out your statements promptly; then if you do not receive prompt payment in return you will at least know that it was through no neglect of your own that you did not receive your money. The efficient business man is in the habit of paying his bills promptly. Give him a chance to do so by letting him know as soon as possible the amount of his bill.

Finds Klentzer Cold Air Shoe Only 50 Per Cent Efficient

Two 6-Inch Cold Airs Exerted Pressure on Air and Started Circulation

By Sam J. Sorensen

MY OPINION of why the Klentzer & Klentzer job is functioning better now than it did before the correction was made is this:

The 6-inch outside intakes which were inserted have the strong outside pressure behind them and have thus set up a circulation of air from the outside in. This rush of air in turn syphons the inside air with it on its upward journey.

As your cold air shoes are 14 inches high, only about 50 per cent of your cold air return is functioning, or I should say that these shoes are only about one-half efficient.

When installing a furnace, always keep in mind the fact that there is only about 5 degrees difference in the temperature of the air at the floor line and that at the breathing line. From this you can readily see that it does not require much to stop your cold air from circulating at all.

The 4 inches that your boot is too high will cause the air to stop moving if there is much of a flare or taper in the fire pot.

About two years ago I was sent to a job on which complaint was made that the tenant could smell wood burning. It was thought that the furnace was getting too hot. This installation was made by one of our largest installers in Chicago in a 5-room second flat of a 4-flat building. The system had only been in operation about a year when I got the call. Here's what I found:

This installation had four 10-inch runs of warm air pipes and one 8-inch cold air return. The cold air return came straight down from the second floor, having been lathed and plastered in through the first floor flat and then straight down into the basement, where it ran along side of the furnace to the shoe. The basement pipe was 20 inches in diameter and was connected to the furnace by means of a transition shoe 14 inches high.

Now, this job was sure a neat, tight, full-capacity job all the way through, with no obstructions whatsoever. You could look into the cold duct on the second floor and see the bottom of the cold air shoe, showing how straight the pipe was.

In this article the author, Sam J. Sorensen, 1336 North Central Avenue, Chicago, has analyzed, as best he could with the information given, the Klentzer & Klentzer two-flat warm air heating job. He has given the reasons why he thinks the job quit working after giving satisfaction for so long a period of time and has also solved the mystery of why the installation of the two six-inch cold air ducts taken from the outside restored the original balance to the system.

In making this analysis, Mr. Sorensen has not only contributed materially to the fund of knowledge now extant on the causes for a warm air heating system to reverse, but he has also started a discussion among warm air heating men that is bound to benefit each and everyone who has participated in the original problem and also those who were standing on the side lines.—The Editor.

Now, what I want to emphasize is that that cold air return was the best warm air heat pipe you ever saw, while all of the warm air ducts had been turned into cold air returns.

This cold air return was pulling the warm air right through the cold air shoe and then up through the duct that was supposedly installed for the purpose of returning the cold air to the furnace from the second floor. And the funny part about it was that this cold air return was working so efficiently as a warm air duct that the warm air coming through it had scorched the lath so that it smelled like burning wood.

The high cold air shoe was a contributing cause for this heating system reversing. There is also another cause, which I shall endeavor to explain.

In the first place, the five degrees difference in temperature between the air at the floor line and that at the breathing height is so small that the slightest change in weight of the air will overbalance the scale. Now with that condition existing and the large capacity of air in the duct going straight up, it was very easy for the system to become overbalanced.

With the cold air shoe 10 inches high and shielded on the inside, while at the same time taking care not to obstruct the free air flow, your air can never become unmovable or dead air, or anything else you wish to name it. That condition cannot exist, because there is always sufficient inleakage of fresh air through the doors and windows, even when these are closed, to insure against it.

The reason for your job just beginning to give you trouble now after all this time of successful operation can be explained in two ways. The first of these is that perhaps your furnace needs resetting. If this were true, the rate of fuel combustion would be reduced and the furnace would not generate the heat that it did when it was new, thus upsetting the balance. The hotter you get the air, the easier it

is going to circulate, because its tendency to rise is going to be accelerated.

The second reason might be the fact that the house had become tightened with several coats of paint, which would apply also to the roof.

At the outset you might have had considerable air leakage into the flat. This would have released the back pressure, which in turn would have permitted your system to function, even though your cold air returns did not circulate.

It was for this reason that the vent in the roof was suggested; that is, in order to relieve the pressure on the second floor.

Now, let's find out what somebody else has got to say about this installation.

International Heater Stages Attractive Display at Columbus

Every Furnace Installer Should Have Similar Permanent Displays

AS THE warm air heating industry progresses in the art of salesmanship, this progress is reflected very clearly in the window displays and displays generally that are made both by the manufacturers and installers of warm air furnaces. These men are appreciating more and more each day the value of cleanliness as an influencing factor in the building of good will for the industry and consequently in the making of greater sales.

A glance at the accompanying illustration will clarify our meaning. It is the exhibit of the International Heater Company that was staged at the Ohio hardware show.

The warm air furnace man, until quite recently, has labored under the impression that there existed no way in which a warm air furnace could be attractively displayed. He thought that window displays were all right for the jeweller, the hardware man, the grocer and the florist, whose wares lent themselves easily and naturally to display. But as for a man being able to display a furnace so that it would attract favorable attention, that was next to impossible, and so the matter rested with nothing done.

Warm Air Furnace Display of International Heater Company Staged at Columbus, Ohio, During the Ohio Hardware Show.

There is nothing of a serviceable nature and for which there is a demand that cannot be properly displayed. There is a method of displaying every type of saleable commodity so that it will appear in its best light to the prospective purchaser and so that it will arouse the desire for possession of the article itself. It remains for the merchant selling such commodities to study the methods of display that are at his disposal and to pick therefrom those which he has reason to believe will produce the desired result.

There are at least one or two or half a dozen warm air furnace installers in every town and city that have successfully solved their display problems. They have gone about the matter in a scientific way; they have tried one type of display after another, discarding and revising as they went along.

The furnace manufacturers have not been backward in assisting the installers with their display problems. And while the accompanying illustration merely shows a booth by the manufacturer at a hardware show, it does contain some valuable ideas about display which any warm air furnace installer could easily appropriate for his own use.

Bergstrom Stove Co., Neenah, Wis., Buys E. C. Dunning, Inc.

A consolidation of E. C. Dunning, Inc., Milwaukee, Wisconsin, and the Bergstrom Stove Company, Neenah, Wisconsin, has become effective, according to an announcement to that effect made by E. C. Dunning, president.

The Bergstrom Stove Company has purchased E. C. Dunning, Inc., and E. C. Dunning has been elected secretary and sales manager of the newly formed organization.

The manufacture of KWIK-LOK furnace pipe and fittings will be continued at the new factory at Milwaukee. The business offices of the Bergstrom Stove Company will be maintained in Neenah.

Humidifiers Placed Among Inventions Contributing to Public Welfare

Well Known Writer Sees Humidifiers Contributing to Reduction of Winter Diseases

THAT the research work in the warm air heating industry is a powerful sales stimulant is becoming more and more evident as information concerning the work that has been done at the University of Illinois seeps out and is absorbed by the public.

An important ally of the warm air heating industry in this work of popularizing the warm air heating system and its accoutrements is the fact that with that type of system perfect humidification of the air is possible and perfect humidification is necessary to the maintenance of good health.

Within the last two or three years there has been more discussion by the public of proper humidification and its relation to good health than ever before. There has been a lot of mud thrown at the warm air heating industry during that time, but as always, right triumphs in the end, and out of all this discussion has come a better appreciation of the warm air heating system by the public than at any time previous.

The public is awakening to the fact that the warm air heating and allied industries are really putting forth an earnest effort to improve a product which from a health standpoint, as well as from the standpoints of flexibility and economy of operation, has no equal.

For instance, the March 12th issue of the Saturday Evening Post contained an article by no less a well known writer than Floyd W. Parsons in which Mr. Parsons reviewed the various inventions that have added to the welfare and comfort and have lessened the burdens of the public. It was very gratifying to note that the devices for humidification received prominent notice in this article.

The following is an excerpt from this article by Mr. Parsons, which, it is needless to say, will stimulate the right kind of thoughts in the minds of all home owners who read it:

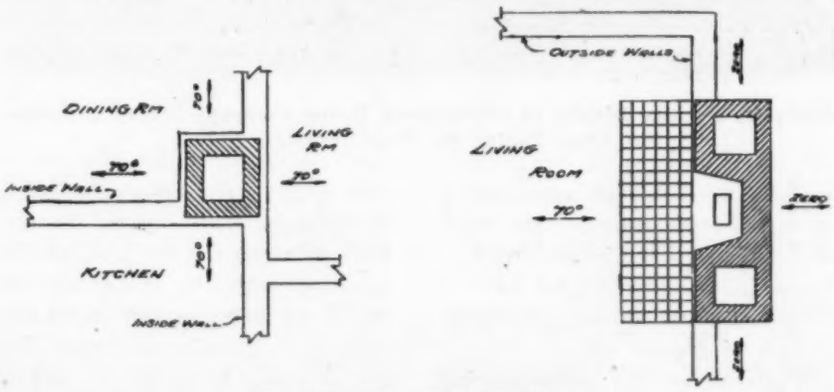
"Much has been written respecting the desirability of supplying moisture as well as heat to the indoor air we breathe during the cold months. Moisture is now supplied to the air in many large buildings, but the cost of humidification in our homes has been prohibitive. Therefore it is pleasant to know that simple devices of great merit are just now coming on the market to remedy the condition. They are ornamental and quite as foolproof as the commonplace electric fan. One employs a tiny electric motor, plugs into a lamp socket, is portable, and needs to be filled with water but once a day. If desired, it can be connected to a nearby water supply.

"The indoor air we breathe in the wintertime seldom contains more than 15 or 20 per cent moisture, which is less than exists in the atmosphere of the Sahara Desert. In order to keep our air passages in a healthy condition and reduce the dreaded winter diseases brought on by dry membranes, it is necessary for us to surround our bodies with a humidity of from 40 to 45 per cent. To keep this content of moisture in a living room that is open to the rest of the house requires that the little humidifier shall supply the air with the equivalent of about two gallons of water each day, all of which it does in effective fashion. This necessity for humidity in our homes, offices and factories is going to force a radical change very soon in the heating practices of the day. Air cooling must be included in the central plant and provision must be made for reversing the system in the summertime so it will produce cold instead of warth for the occupants of the dwelling.

Chimney Construction Has Not Kept Pace with Other Developments

In Warm Air Heating Industry— Chimney an Important Factor

IN LOOKING back over the practice of warm air heating in the past, it is evident that the methods of installation in olden days were indeed crude, but it must be said in favor of building construc-



Showing Chimney Construction

tion in those days, that chimneys as a rule were superior to those of today, for they were usually built on inside walls and generally more than one to a house, says the *Gas Draft,* of the Meyer Furnace Company.

It is true that in most cases the chimneys built were too small for furnace connection, but it is to be remembered that they were intended principally for stove connections.

True, too, often there were several connections to the same flue, but this did not happen in all cases, nor was this anything to the discredit of chimney construction in those days. The point we want to make is that in our opinion improvement in chimney construction has not kept pace with developments in warm air heating, for in the past chimneys were usually built on inside walls, and an outside chimney was intended to serve only the fireplace, whereas nowadays it is quite the custom to have chimneys built on outside walls and usually intended to serve fireplace as well as furnace.

And not only that, but today there are all kinds of patent chimney flues, of cement, tile, brick, metal, etc.—some with open spaces in the corners to save material, which are sure to leak air into the inner flue sooner or later, while others have patent joints which only an expert can put together properly, while chimney construction of days gone by consisted mainly of brick and mortar—admittedly superior.

Heating planning and engineering departments are aware that buildings with outside chimneys are on the increase, while the building of inside chimneys is constantly decreasing, though if the attention of the architect, contractor or homeowner was called to the advantage of an inside chimney, in many cases they could be converted, for the benefit of all concerned, and many a trouble job would be nipped in the bud.

For a proper draft is one of the most essential requirements of any heating system, and this draft is dependent upon a properly built flue, taking into consideration size, height, wind velocity and differences in temperatures of the hot gases inside and the cooler, outer atmosphere. If a flue is built properly in height and all, with no wind velocity, then the action of the flue depends entirely upon the differences in temperatures of gases and outside atmosphere, and it will therefrom readily be seen that an inside flue has every advantage because it is surrounded by warm walls and air at a temperature of approximately 70 degrees and higher, while an outside flue is exposed to temperature at zero and below, with the result that the difference in temperature between the hot gases on inside of flue and the outer atmosphere is materially reduced, which correspondingly reduces the draft and in turn affects the performance of the entire heating system.

The accompanying illustrations serve to explain the foregoing. All things considered, we favor the inside chimney.

Here's How a Woman Can Be Sold Hardware

Keep Store Neat, Price Tag Articles and Be Courteous to Attract Women to Your Store

THE woman as a prospective purchaser of hardware differs from the man and the store catering to her trade must therefore present the dual attraction that catches the eye and the dollars of both sexes.

Women, even more so than men, are gregariously inclined. Their trade, as a class, is never divided; either the women patronize a store as a body or they patronize it not at all. They are, when on the buying path, inclined to be haters of mankind; the facetiousness of the average female disappears when she leans across the counter. She becomes a buyer, a buyer with no whit less purpose or determniation than the jobbing house buyer who daily inspects scores of products offered for his approval.

No haphazard selling appeal ever sold a woman. When she enters the store in that minatory attitude which countenances no inevincible sales talk, she is there either to buy or not to buy. And the very earnestness of her shopping frequently belies her purpose.

When, after looking over what is offered, the woman walks out of the store without making a purchase, the merchant is likely to console himself with "Oh, well, women are born shoppers. Only about ten per cent of them intend to buy when they go on a sight-seeing tour." But he may put it down that the woman who walked out of his store empty-handed will have purchased something before she returns home. Some fifty million husbands of these United States will unanimously testify to this fact.

Many hardware dealers — and other merchants, too, for that matter—make the mistake of adopting a fanfaronade attitude when handling a female prospect. They become blustery, even bullying. The woman appears frail, surely a bit of applied superselling will form her decision!

But it doesn't. She isn't a baseball player, she isn't a carpenter and she isn't a prize-fighter. The female prospect must be handled with diplomacy, even with a touch of old-fashioned gallantry. The most hard-boiled flapper is hard-boiled only on the surface; she expects a lot of Raleighan consideration when spending her dollars.

I am acquainted with one neighborhood hardware dealer who has become locally famous for his considerate, almost Elizabethan, demeanor with women. He does not try to be facetious; yet he fairly extrudes an air of gallantry. The women impose on him, to be sure; but he gets their trade. It is not uncommon for this dealer to spend fifteen or twenty minutes at sawing

a board for a fair customer—at no charge.

He is, in a way, the neighborhood cabinetmaker. When a housewife is making new valances, she prevails on him to help her. And when she is in the market for any sort of hardware, she remembers him.

Five Rules of Selling Women

There are five rules that must be observed in selling women. They are:

Keep your store neat; cleanliness is a natural feminine attraction.

Be courteous; don't look on the woman as one who spends a dime with you and expects a dollar in service. Your own attitude bears an important relation to the patronage she gives you.

Price-tag your merchandise. The woman is inherently a buyer. She does not like to ask a price, but she's interested.

Invite women into your store. A direct appeal convinces them that you want their trade.

Observe the reaction of women to your store and your merchandise. If they don't like the establishment, something is radically wrong. Seek out these faults and correct them.

Arnold "Glass" Gas Range Has Many Unique Features

The Arnold F. Glass Gas Range Company, Inc., Birmingham, Alabama, has developed a new "Glass" gas range, which, according to the company, is a triumph in range building.

The principal feature of the range is the saving in gas that is effected by its use. The range is so constructed that all of the heat the gas burned is utilized before it can escape.

To quote from the circular which has been recently issued: "The two long burners turned on from six to twelve minutes will heat the whole top as well as the oven to a high temperature from broiling, frying, roasting, baking, boiling or stewing, in a very short time, and at the same time and during this one operation, heat your 30-gallon tank, giving you all the hot water that's necessary. We consume 65 per cent of the heat lost in domestic stoves."

The circular is fully illustrated and explains each and every detail of the range. Retailers who are anxious to carry a range with many selling points will do well to write for circular and make full investigation of the Arnold "Glass" gas range.

Western Warm Air Meeting To Be Furnace Installer's Educational Opportunity

The publicity committee of the Western Warm Air Furnace & Supply Association has announced that the dates of the mid-year convention have been set, subject to change, at June 1 and 2, 1927, and the convention will be held at the Pere Marquette Hotel, Peoria, Illinois.

The program which has been arranged, and which will be published at a later date, is in the nature of a furnace man's educational meeting. The customary business of the association will be taken up as usual, but the major portion of the time, as the program shows, will be given over to educational features for the furnace installers. Watch for further announcements of this meeting.

How Long Will 24-Gauge Galvanized Tank Containing Brine Last?

R. A. MacTavish, proprietor of the Glenwood Sheet Metal Works, Glenwood Springs, Colorado, sends an inquiry as follows: "Please advise us how long a 24-gauge galvanized tank containing chopped ice and salt brine will endure. Also, what is the average life of a 16-ounce tank used for the same purpose? What experience have you had with such tanks?"

Sheet Metal Contractors' Association of Pennsylvania and the Distributors' and Salesmen's Auxiliary of Pennsylvania, Hotel Bethlehem, Bethlehem, Pennsylvania, April 5, 6 and 7, 1927. W. F. Angermyer, 7253 Frankstown Avenue, Pittsburgh, Secretary. George A. Hesky, 314 Packer Avenue, Bethlehem, Chairman Convention Committee.

Illinois Sheet Metal Contractors' Association, Ottawa, Illinois, April 6 and 7, 1927. Fred J. Graeff, Secretary, 222 East Washington Street, Springfield, Illinois.

National Warm Air Heating and Ventilating Association, Hotel Cleveland, Cleveland, Ohio, April 13 and 14, 1927. Allen W. Williams, 168 East Long Street, Columbus, Ohio, Secretary.

Southeastern Retail Hardware and Implement Association, composed of Alabama, Florida, Georgia and Tennessee, Convention and Exhibition, Jacksonville, April 19, 20, 21, 1927. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

Texas Sheet Metal Contractors' Association, Hotel Adolphus, Dallas, Texas, April 24 and 25. Harry Stanyer, Secretary-Treasurer, 2422 Alamo Street, Dallas.

National Association of Sheet Metal Contractors, Adolphus Hotel, Dallas, Texas, April 26, 27, 28 and 29, 1927. W. C. Markle, Secretary, 850 West North Avenue, Pittsburgh, Pennsylvania.

Arkansas Retail Hardware Association Convention, Little Rock, May, 1927. L. F. Biggs, Secretary, Little Rock.

Indiana Fur-mets annual convention, Hotel Severin, Indianapolis, May 4, 5 and 6, 1927. Harry R. Jones, 308 Kenmore road, Indianapolis, Secretary.

Indiana Heating and Ventilating Association Convention, Hotel Severin, Indianapolis, May 4, 5 and 6, 1927. Frank E. Anderson, Terre Haute, Indiana, Secretary.

Indiana Sheet Metal Contractors' Convention, Hotel Severin, Indianapolis, May 4, 5 and 6, 1927. William N. Strassner, Anderson, Indiana, secretary.

Metal Branch meeting of the National Hardware Association, Hotel Cleveland, Cleveland, Ohio, May 5 and 6, 1927. F. O. Schoedinger, Columbus, Ohio, Chairman.

Southern Hardware Jobbers' Association, Peabody Hotel, Memphis, Tennessee, May 10 to 13, 1927. John Donnan, Secretary, Richmond Virginia.

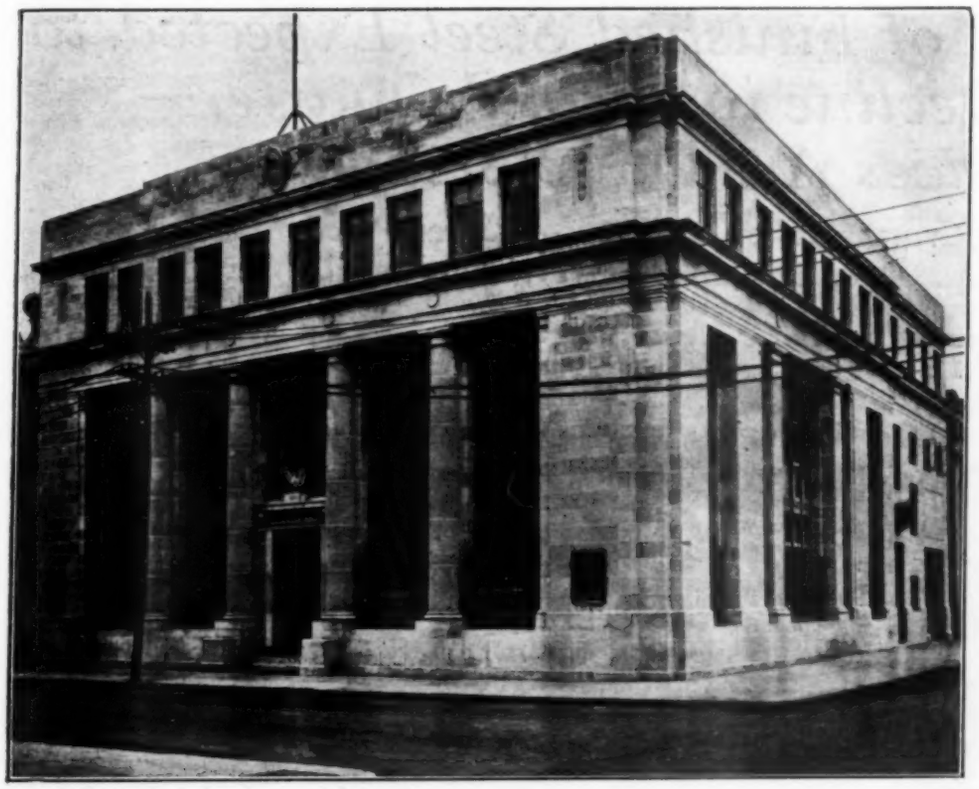
Old Guard Southern Hardware Salesmen's Association, Peabody Hotel, Memphis, Tennessee, May 11, 1927. R. P. Boyd, Secretary, R. F. D. No. 4, Box 19, Knoxville, Tennessee.

Western Warm Air Furnace & Supply Association, June 1 and 2, 1927, Peoria, Illinois. John H. Hussie, Secretary, 3624 La Fayette Avenue, Omaha, Nebraska.

Mississippi Retail Hardware and Implement Association Convention and Exhibition, headquarters, White House, Biloxi, June 13, 14, 15, 1927. Buy Nason, Secretary, Columbus.

National Retail Hardware Association Congress, Mackinac Island, Michigan, June, 1927. H. P. Sheets, Secretary-Treasurer, 130 East Washington Street, Indianapolis, Indiana.

Missouri Sheet Metal Contractors' Association at Sedalia, Missouri, July 12 and 13, 1927. Ben Kolbenschlag, 3618 North Grand Street, St. Louis, Secretary.



Little Rock's (Arkansas) new Federal Reserve Bank Building proved quite a profitable job for Ketcher & Company, who did all the sheet metal work—with ARMCO Ingot Iron

Sheet metal that preserves your reputation for quality work

GOOD will is a most important asset to any business. So thousands of contractors insure the good will of their customers by recommending ARMCO Ingot Iron, the iron that resists rust.

But even more direct benefits accrue to the shop that uses ARMCO Ingot Iron. Workability, for instance. Because this pure iron is uniformly soft, and has a purer, adherent zinc coating, it shapes easier. Specifications are met on time. And labor costs are reduced.

If you are not already acquainted with ARMCO Ingot Iron, ask us to tell you the interesting story of how it makes extra profits possible.

ARMCO Ingot Iron

Back of the triangle the institution; for more than a quarter of a century makers of special analysis iron and steel sheets for exacting uses

THE AMERICAN ROLLING MILL COMPANY
MIDDLETOWN, OHIO

Export: The ARMCO International Corp.
Cable Address: ARMCO, Middletown

122 S. Michigan Ave., Chicago, Illinois
163 General Motors Building, Detroit, Michigan
432 Oliver Building, Pittsburgh, Pennsylvania
1402 Union Trust Building, Cincinnati, Ohio
50 Church Street, New York, New York
1135 Boatmen's Bank Building, St. Louis, Mo.
1522 B. F. Keith Building, Cleveland, Ohio.
1301 Franklin Trust Building, Philadelphia, Pennsylvania
Tenth and Bryant Streets, San Francisco, California.

ARMCO TRADE MARK **INGOT IRON**
The Purest Iron Made

Production of Finished Steel Expected to Show Decline in Second Quarter—Prices Are Quite Steady

Pig Iron Market Is Active—Easier Price Tone Develops in Nonferrous Metals

WITH the coming of the second quarter the iron and steel industry enters a period marked for declining production. For three consecutive years March has proved the zenith of mill effort and the months of the second quarter have brought progressive, albeit moderate, recession.

Few producers believe the new quarter will maintain the hot pace of the first, but skepticism within the industry concerning the second quarter is less rampant. Doubts originally harbored in regard to the first half are now conferred upon the last half.

For some independent producers March has been the biggest tonnage month in history, and it seems probable that statistics for the entire industry will reveal only a few points deviation from the all-time high of last year. Incoming second quarter business, meanwhile, has buttressed order books and provided momentum for the transition.

No marked changes have occurred in either operating rates or prices in the past week, although there is further talk of stiffening in some finished steel lines.

Pig Iron

The pig iron market at Pittsburgh is active so far as low phosphorus, copper free iron is concerned. Several lots of 1,000 to 4,000 tons were closed during the week at $25, eastern furnace, on a $4.06 freight rate. A valley stack is selling fair size tonnages at $28, furnace.

That basic iron is 50 cents higher than a week ago is substantiated by the sale of one lot of several thousand tons, purchased by a maker of basic who requires more than his output to supply the requirements of affiliated customers. This was closed at $19, valley.

Bessemer sales up to 250 tons at a time were noted during the past week at $19.50, valley. Foundry and malleable grades are slightly stronger, more producers being inclined to ask $19, valley basis, including certain steel-works furnaces.

Active second quarter buying of northern pig iron at Chicago continues, but at a shade lower price than in the past four weeks. The March buying movement is regarded as the heaviest since November. Second quarter business is well along, but several large melters are expected to come into the market for malleable. Melters in western Michigan are more active.

An inquiry for 5,000 tons by a Chicago melter is pending. Other inquiries include 700 tons of foundry iron for Chicago; 300 tons of malleable for a Milwaukee melter. A Kalamazoo foundry closed for 2,000 tons at a slightly higher figure than its recent purchases.

At Birmingham furnace interests hope for an early buying movement, though current sales are small. For second quarter, $18, base, Birmingham, still is quoted.

Copper

Some copper producers have cut their offering price and metal has sold down to 13.12½ cents, Connecticut basis. Producers generally hold for a higher figure, however, and feel that as no real business is going at the lower price, nothing is to be gained in cutting.

Midwestern prices are around 13.37½ cents to 13.50 cents. Some users are specifying earlier than originally planed.

Zinc

About a week ago some buying of zinc was done but in the past few days the market has been quiet and easy.

The Joplin ore market slipped off $1 to $44 a ton, and while the decline was the result of an easy metal market, it made the latter more difficult to hold. High grade zinc is lower at 8.50 cents to 8.75 cents.

Lead

Prices of lead were cut about 30 points during the past week and seldom have been much lower in recent years.

Buyers have been holding out lately in expectation of this action and it is believed some of them soon will be forced into the market. Yet the prices at the lower level have continued to look easy. One concern cut its price 10 points to 7.35 cents, New York.

Tin

Tin users have done little buying lately and so the market has been weak. However, while nearby shipments have fallen about 1 cent lately, futures have shown more resistance.

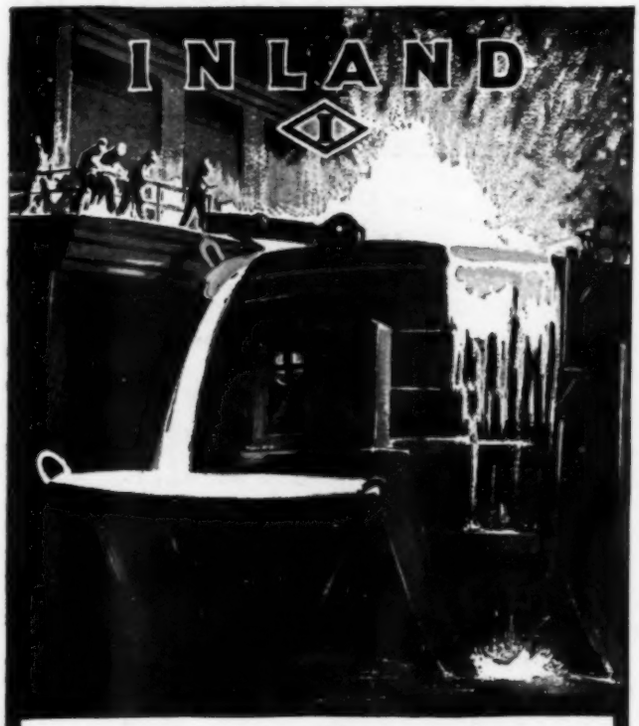
Supplies appear plentiful and users are well covered for April, but it is believed much buying still is to be done for May.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, $42.75; commercial 45-55, $39.75; and plumbers', $36.75, all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, $17.00 to $17.50; old iron axles, $22.00 to $22.50; steel springs, $16.25 to $16.75; No. 1 wrought iron, $11.75 to $12.25; No. 1 cast $15.50 to $16.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pounds: Light copper, 9 cents; zinc, 4½ cents, and cast aluminum, 15 cents.



At the Service of Steel Users

INLAND STEEL COMPANY
38 South Dearborn Street, Chicago
Works: Indiana Harbor, Indiana; Milwaukee, Wisconsin
Chicago Heights, Illinois
Branch Offices and Representatives
ST. PAUL • ST. LOUIS • SALT LAKE CITY • MILWAUKEE
KANSAS CITY • NEW ORLEANS • EL PASO

ARMCO INGOT IRON
The Purest Iron Made

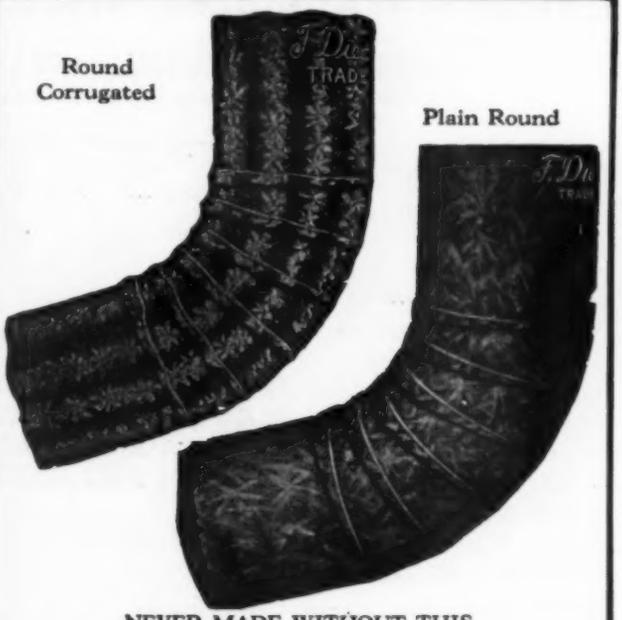
ARCHITECTS and Contractors are well acquainted with this long-lasting sheet metal. Our stock includes every size and gauge required by the trade.

"Since 1866" we have been serving and satisfying customers in all parts of the country.

Everything in Sheet Metal

Coke and Charcoal Tin Plate
Roofing Plate
Conductor Pipe
Gutter
Tinner's Supplies
Brass—Copper Nickel (in all forms)
"Mond-70"
Babbitt
Solder

MERCHANT & EVANS CO.
PHILADELPHIA
WAREHOUSES
NEW YORK CLEVELAND
KANSAS CITY DETROIT
CHICAGO



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TRADE F. Dieckmann MARK

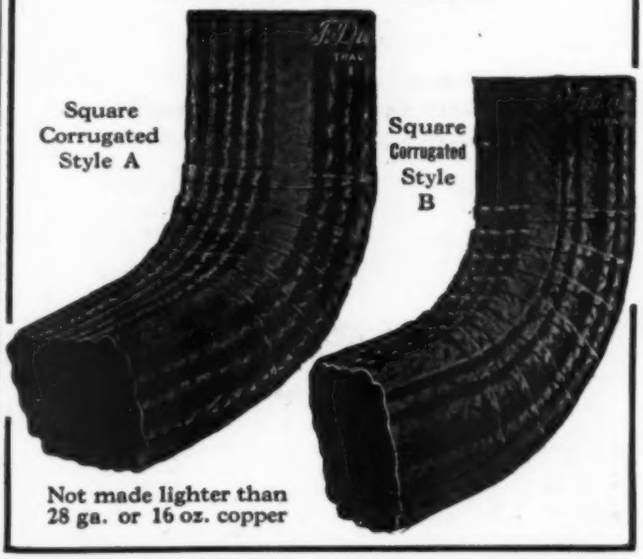
Quality and Service Made 'em Famous

Made of one piece of heavy gauge material, in all styles and angles from 10 to 90 degrees, of 24, 26, 28 ga. ternes, then galvanized after formation.

DIECKMANN
Elbows and Shoes
are the standard of the market and always give satisfaction

Send for new catalogue 26 showing complete line

The Ferdinand Dieckmann Co.
P. O. Station B, Cincinnati, O.



Not made lighter than 28 ga. or 16 oz. copper

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON

Chicago Fdy., No. 2.....$20 00
Southern Fdy., No. 2..... 24 01
Lake Superior Charcoal.... 27 04
Malleable 20 00

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets...$25 10
IX 20x28..... 29 60
IXX 20x28 56 sheets.... 16 20
IXXX 20x28..... 17 55
IXXXX 20x28..... 18 95

TERNE PLATES

Per Box
IC 20x28, 40-lb. 112 sheets $26 00
IX 20x28, 40-lb. 112 sheets 28 50
IC 20x28, 25-lb. 112 sheets 21 75
IX 20x28, 25-lb. 112 sheets 24 25
IC 20x28, 20-lb. 112 sheets 20 00
IV 20x28, 20-lb. 112 sheets 22 50
IC 20x28, 15-lb. 112 sheets 18 50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including ¼ in.—100 lbs. $4 55

COKE PLATES

Cokes, 80 lbs., base, 20x28.$13 60
Cokes, 90 lbs., base, 20x28. 13 80
Cokes, 100 lbs., base, 20x28. 14 00
Cokes 107 lbs., base, Ic 20x28 ..... 14 30
Cokes, 135 lbs., base IX 20x28 ..... 16 40
Cokes, 155 lbs., base, 56 sheets 9 20
Cokes, 175 lbs., base, 56 sheets 10 05
Cokes, 195 lbs., base, 56 sheets 10 90

BLUE ANNEALED SHEETS

Base 10 ga.....per 100 lbs. $2 80
"Armco" 10 ga..per 100 lbs. 4 00

ONE PASS COLD ROLLED BLACK

No. 18-20.....per 100 lbs. $3 75
No. 22.....per 100 lbs. 3 90
No. 24.....per 100 lbs. 3 95
No. 26.....per 100 lbs. 4 05
No. 27.....per 100 lbs. 4 10
No. 28.....per 100 lbs. 4 20
No. 29.....per 100 lbs. 4 35
No. 30.....per 100 lbs. 4 45

"ARMCO" GALVANIZED

"Armco" 24.....per 100 lbs. $6 15

GALVANIZED

No. 16.....per 100 lbs. $4 30
No. 18.....per 100 lbs. 4 45
No. 20.....per 100 lbs. 4 60
No. 22.....per 100 lbs. 4 65
No. 24.....per 100 lbs. 4 80
No. 26.....per 100 lbs. 5 05
No. 27.....per 100 lbs. 5 15
No. 28.....per 100 lbs. 5 30
No. 30.....per 100 lbs. 5 70

BAR SOLDER

Warranted
50-50 .....per 100 lbs. $42 75
Commercial
45-55 .....per 100 lbs. 39 75
Plumbers ....per 100 lbs. 36 75

ZINC

In Slabs $8 50

SHEET ZINC

Cash Lots (600 lbs.).....$12 00
Sheet Lots 14 00

BRASS

Sheets, Chicago base.....18¼c
Mill Base 18¼c
Tubing, brazed base.....27¼c
Wire, base 19¼c
Rods, base 16½c

COPPER

Sheets, Chicago base.....22c
Bill Base 21c
Tubing, seamless base.....25c
Wire, No. 9, B & S Ga.....18¼c
Wire, No. 10, B & S Ga.....18¼c
Wire, No. 11, B & S Ga.....19c
Wire, No. 8, B & S Ga. and heavier 17¾c

LEAD.

American Pig $8 10
Bar 9 10

Sheet
Full Coils .....per 100 lbs. 14 00
Cut Coils .....per 100 lbs. 14 25

TIN

Pig tin .....per 100 lbs. $77 00
Bar tin .....per 100 lbs. 78 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16.....6c per lb.
Roll board .....6¼c per lb.
Mill board 3/32 to ⅛.....6c per lb.
Corrugated Paper (250 sq. ft. to roll).....$6.00 per roll

BRUSHES

Hot Air Pipe Cleaning
Bristle, with handle, each $0 85

Flue Cleaning
Steel only, each..... 1 25

BURRS

Copper Burrs only.....40-5%

CEMENT, FURNACE

American Seal, 5-lb. cans, net $ 40
American Seal, 10-lb. cans, net 80
American Seal, 25-lb. cans, net 2 00
Pecora .....per 100 lbs. 7 51

CHIMNEY TOPS

Iwan's Complete Rev. & Vent 30%
Iwan's Iron Mountain only....35%
Standard .....30 to 40%

CLINKER TONGS

Front Rank, each.....$0 75
Per doz. 8 40

CLIPS

Damper
Acme, with all tail pieces, per doz. $1 25
Non Rivet tail pieces, per doz. 25

COPPERS—Soldering Pointed Roofing

3 lb. and heavier.....per lb. 40c
2½ lb. ... .per lb. 45c
2 lb. . .....per lb. 48c
1½ lb. .....per lb. 55c
1 lb. .....per lb. 60c

CORNICE BRAKES

Chicago Steel Bending
Nos. 1 to 6B.....Net

CUT-OFFS

Gal., plain, round or cor. rd.
26 gauge 30%
28 gauge 35%

DAMPERS

"Yankee" Hot Air
7 inch, each 20c, doz.....$1 75
8 inch, each 25c, doz..... 2 40
9 inch, each 30c, doz..... 2 75
10 inch, each 32c, doz..... 3 00

Smoke Pipe
7 inch, each.....$0 35
8 inch, each..... 40
9 inch, each..... 50
10 inch, each..... 60
12 inch, each..... 90

Reversible Check
8 inch, each.....$1 56
9 inch, each..... 1 70

DIGGERS

Post Hole
Iwan's Split Handle (Eureka)
4-ft. Handle..per doz. $14 00
7-ft. Handle...per doz. 36 00
Iwan's Hercules pattern, per doz. 14 90

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5%
Zinc, "Barnes" 60%

ELBOWS

Conductor Pipe
Galv., plain or corrugated, round flat Crimp.
28 Gauge 60%
26 Gauge 45%
24 Gauge 15%

Galv. & Terne Steel
Plain Rd. and Rd. Corr.:
28 Ga. 60%
26 Ga. 45%
24 Ga. 15%

Square Corrugated
No. 28 Gauge.....50%
26 Gauge 35%

Portico Elbows
Standard Gauge Conductor Pipe, plain or corrugated.
Not nested .....70 & 5%
Nested solid .....70 & 5%

Sq. Corr., A. & B. & Octagon:
28 Ga. 50%
26 Ga. 35%

Portico
1", 1¼", 1½".....45%

Copper
16 oz., all designs.....45%

Zinc—
All styles 60%

ELBOWS—Stove Pipe

1-piece Corrugated. Uniform Blue "Milcor" No. 28 Gauge. Doz.
5-inch $1 25
6-inch 1 35
7-inch 1 75

Special Corrugated
6-inch $1 00
7-inch 1 40

Adjustable—Uniform Blue
"Milcor" No. 28 Gauge. Uniform Blue.
5-inch $1 75
6-inch 1 85
7-inch 2 15

WOOD FACES—50% off list.

FENCE

726-6-12½% (100 rods)....$28 68
1948-614½% (100 rods).... 43 62

FILES AND RASPS

Heller's (American) 50-10%
American 60-10%
Arcade 50%
Black Diamond 50%
Eagle 50%
Great Western 50%
Kearney & Foot.....50%
McClellan 50%
Nicholson 50%
Simonds 60%

FIRE POTS

Clayton & Lambert's
East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas 52%
West of above boundary....48%

Geo. W. Diener Mfg. Co. Ea.
No. 02 Gasolene Torch, 1 qt. .....$ 5 55
No. 0250, Kerosene, or Gasolene Torch, 1 qt.. 7 50
No. 10 Tinner's Furn. Square tank, 1 gal..... 12 60
No. 15 Tinner's Furn. Round tank, 1 gal..... 12 00
No. 21 Gas Soldering Furnace 3 60
No. 110 Automatic Gas Soldering Furnace 10 50

Double Blast Mfg. Co.
Gasolene, Nos. 25 and 36..60%

Quick Meal Stove Co.
Vesuvius, F. O. B. St. Louis 30% (Extra Disct. for large quantities)

GALVANIZED WARE

Pails (Galv. after made), 10-qt. $2 12
Tubs (Galv. after made).
No. 1 ..... 6 00
No. 2 ..... 6 85

GLASS

Single Strength, A, 25-in. brackets 87%
Single Strength, A, 34 to 40-in. bracket 86%
Single Strength, A, all other brackets 86%
Double Strength, A, all sizes..86%

HANGERS

Conductor Pipe
Milcor Perfection Wire.....25%
Eaves Trough
Milcor Eclipse Wire.....15%
Milcor Triplex Wire.....10%
Milcor Milwaukee Extension 10%
Milcor Steel (galv. after forming) List ....plus 12½%
Milcor Selflock E. T. Wire, List ..... plus 50%

HOOKS

Bee
V. & B. No. 1, each.....$0 36
Conductor
"Direct Drive" Wrought Iron for wood or brick..15%
Hay
V. & B. No. 1, each.....$0 36

HUMIDIFIERS

"Front-Rank," Automatic
In single lots 50%
In lots of 10 or more....50-5%
In lots of 25 or more...50-10%
Vapor pans, etc., each.....50%

LIFTERS

Stove Cover
Coppered .....per gro. $6 00
Alaska .....per gro. 4 75

MALLETS

Tinners
Hickory .....per doz.$2 25

MITRES

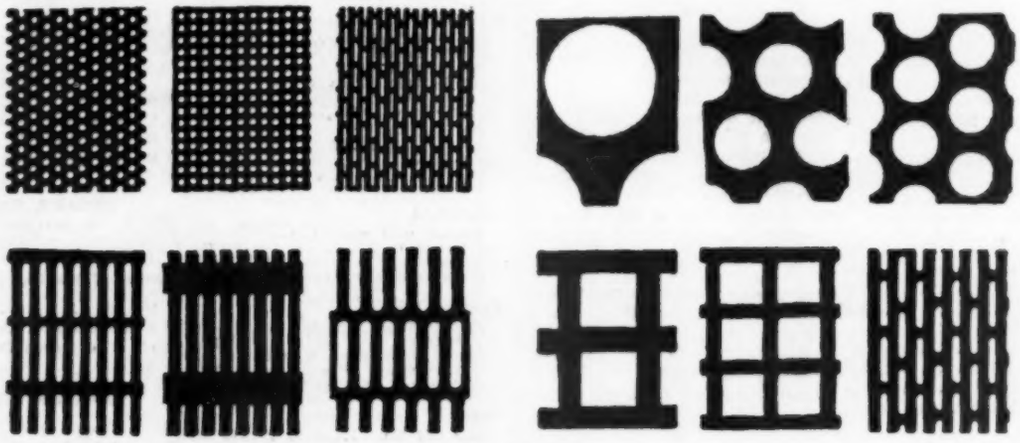
Galvanized steel mitres,
28 Ga. 70
26 Ga. 60-20

NAILS

Cut Steel $4 35
Cut Iron 4 35
Wire
Common 2 95
Cement Coated 2 95

(Continued on Page 36)

PERFORATED METALS



All Sizes and Shapes of Holes in all Kinds and Thicknesses of Metal.

Punched Metal Grilles, Register Faces, Ventilators, etc.

Guard Material for Machines and Belts. We supply a complete line of Accessories

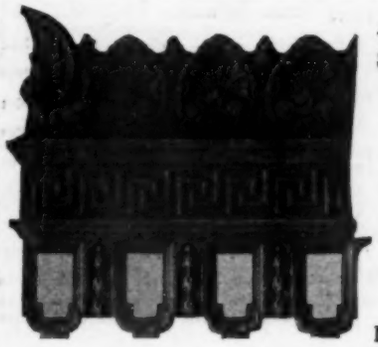
Screens for Grain, Minerals or anything to be screened.

Perforated Tin and Brass always in stock

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE STREET, CHICAGO, ILLINOIS, U. S. A.

New York Office: 114 Liberty Street



ARCHITECTURAL
SHEET METAL
ORNAMENTS
Made of
ZINC
COPPER
BRONZE
OR
LEAD
Also
METAL CEILINGS

SPECIALISTS IN SPECIAL WORK

ESTIMATES SUBMITTED ON RECEIPT
OF
BLUE PRINTS OR DRAWINGS

Ornamental Catalogue No. 50 on request

FRIEDLEY-VOSHARDT CO.

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Factory: 761-771 Mather St.

CHICAGO ILLINOIS

OSBORN'S LEAD COTE

It has the flexible strength of steel.

It has the rust-resisting qualities of lead.

It lends itself to artistic development.

It is a durable and economical sheet metal.

It is uniformly soft and level—easy to work.

Its coating will not flake or peel.

Immediate shipment from stock—No. 18 to 28 gauges.

The J. M. & L. A. OSBORN CO.
"Everything used in Sheet Metal Work"
CLEVELAND
Buffalo Warehouse ∴ 64-68 Rapin Street

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The front page of this catalog tells you how to save 10% on your book purchases. Send in a postal request today. Book Dept.

AMERICAN ARTISAN AND HARDWARE RECORD
680 South Michigan Avenue Chicago, Illinois

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NETTING, POULTRY

Galvanized before weaving 57½-5%
Galvanized after weaving.52½-5%

PASTE

Asbestos Dry Paste:

200-lb. barrel	$16 00
100-lb. barrel	8 75
35-lb. pail	3 50
10-lb. bag	1 10
5-lb. bag	60
2½-lb. cartons	35

PIPE

Conductor

Cor. Rd., Plain Rd. or Sq.

Galvanized

Crated and nested (all gauges) 75-2½%
Crated and not nested (all gauges) 70-15%

Furnace Pipe

Double Wall Pipe and Fittings 50%
Single Wall Pipe, Round Galvanized Pipe 50%
Galvanized and Tin Fittings 50%

Lead

Per 100 lbs. $12 50

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove

28 gauge, 5 inch U. C. nested	11 50
28 gauge, 6 inch U. C. nested	12 25
28 gauge, 7 inch U. C. nested	14 25
30 gauge, 5 inch U. C. nested	10 50
30 gauge, 6 inch U. C. nested	11 25
30 gauge, 7 inch U. C. nested	13 25

T-Joint Made up

6-inch, 28 ga.....per Doz.$ 5 00

All Zinc

No. 11, all styles 60%

POKERS, STOVE

W'r't Steel, str't or bent, ...per doz. $0 75
Nickel Plated, coil handles, ...per doz. 1 10

POKERS, FURNACE

Each $0 50

PULLEYS

Furnace Tackle....per doz. $0 60
.....per gro. 6 00

Furnace Screw (enameled) .....per doz. 75

Ventilating Register

Per gross	9 00
Small, per pair	30
Large, per pair	50

PUTTY

Commercial Putty, 100-lb. Kits $3 40

QUADRANTS

Malleable Iron Damper.....10%

REDUCERS—Oval Stove Pipe

Per Doz.
7—6, 1 doz. in carton.....$2 25

BASEBOARD REGISTERS

.....50%

FLOOR REGISTERS AND BORDERS

Cast Iron 20%
Steel and Semi-Steel.....40%
Baseboard 40%
Adjustable Ceiling Ventilators 40%

Register Faces—Cast and Steel

Japanned, Bronzed and Plated, 4x6 to 14x14 .....40%
Large Register Faces—Cast, 14x14 to 38x42 .....60%
Large Register Faces—Steel, 14x14 to 38x42 .....65%

RIDGE ROLL

Galv., Plain Ridge Roll, b'did 75-10-5%
Galv., Plain Ridge Roll, crated 75-10%
Globe Finials for Ridge Roll 50%

ROOFING

Per Square

Best grade, slate surf. prep'd	$2 30
Best talc surfaced	2 65
Medium talc surfaced	2 00
Light talc surfaced	1 20
Red Rosin Sheeting, per ton	57 00

SCREWS

Sheet Metal

7, ½x⅛, per gross	$0 52
No. 10, ⅝x3/16, per gross	68
No. 14, ⅞x¼, per gross	89

SHEARS, TINNERS' & MACHINISTS'

Viking $22 00

Lennox Throatless

No. 18 .....35%
Shear blades 10%
(f. o. b. Marshalltown, Iowa.)

SHIELDS, REGISTER

No. 1 "Gem" floor ....$12 00 doz.
No. 2 "Gem" wall .... 6 00 doz.

SHOES

Galv. 28 Gauge, Plain or corg. round flat crimp...60%
26 gauge round flat crimp....45%
24 gauge round flat crimp....15%

SNIPS, TINNERS'

Clover Leaf .....40 & 10%
National .....40 & 10%
Star 50%
Milcor .....Net

SQUARES

Steel and Iron .....Net
(Add for bluing, $3 per doz. net)
Mitre .....Net
Try .....Net
Try and Bevel.....Net
Try and Mitre.....Net
Fox's .....per doz. $6 00
Winterbottom's 10%

STOPPERS, FLUE

Common .....per doz. $1 10
Gem, No. 1.....per doz. 1 10
Gem, flat, No. 3....per doz. 1 00

VENTILATORS

Standard .....30 to 40%

WIRE

Plain annealed wire, No. 8, per 100 lbs.	$3 05
Galvanized barb wire, per 100 lbs.	3 90
Wire cloth—Black painted, 12-mesh, per 100 sq. ft.	1 65
Cattle Wire—galvanized catch weight spool, per 100 lbs.	3 65
Galvanized Hog Wire, 80 rod spool, per spool	3 17
Galvanized plain wire, No. 9, per 100 lbs.	3 40
Stove Pipe, per stone	1 10

WRINGERS

No. 790, Guarantee	each	$ 5 10
No. 770, Bicycle	each	4 70
No. 670, Domestic	each	4 35
No. 110, Brighton	each	3 70
No. 750, Guarantee	each	5 10
No. 740, Bicycle	each	4 70
No. 22, Pioneer	each	3 40
No. 2, Superb	each	2 65

Memorial Monuments

Write for Prices and Illustrations

Gerock Bros. Mfg. Co.

Sheet Metal Ornaments and STATUARY

1252 So. Vandeventer Ave.

St. Louis, Mo., U. S. A.

EVERYTHING
FOR THE TINSMITH

WE are manufacturers as well as merchants and we at all times have on hand a large complete stock of everything that you may be in need of.

Try us on your next order.

This is our motto:

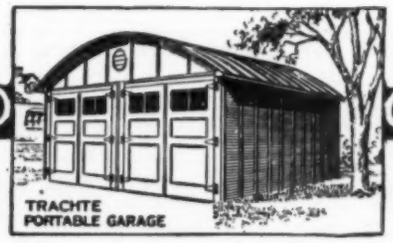
"EVERYTHING MUST BE RIGHT"

Write today for our latest catalog

BERGER BROS. CO.

WAREROOMS AND FACTORY: 100 TO 114 BREAD STREET
229 to 237 ARCH STREET, PHILADELPHIA, PA.

Manufacturers of "Quaker City" line of Miters,



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Make Money with Trachte Portable Steel Garages and Steel Buildings

IMPORTANT processes in the manufacture of portable steel garages and other buildings are controlled by this Company. We have never had a dealer who has not re-ordered. Get the facts. Then get the business through a quality product that goes a long way in selling itself.

Send for Catalog

TRACHTE BROTHERS COMPANY, INCORPORATED

MADISON, WISCONSIN

The 12-Cylinder Ventilator Used in Every State in the Union.

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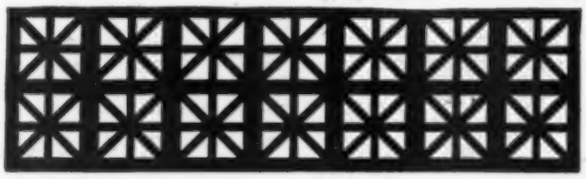

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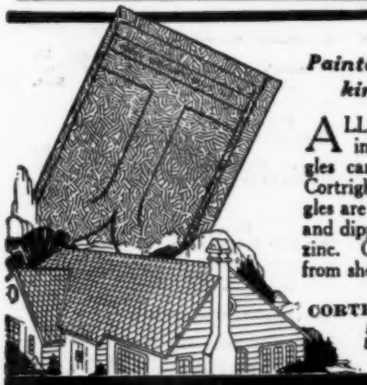

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Floral City Heater Co., Monroe, Mich.
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Robinson Furnace Co., Chicago, Ill.
Standard Furnace & Supply Co., Omaha, Neb.

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Meyer & Bro. Co., F., Peoria, Ill
Milwaukee Corrugating Co., Milwaukee, Wis

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New Jersey Zinc Sales Co., The, New York, N. Y.

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Osborn Co., The J. M. & L. A., Cleveland, Ohio
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Lupton's Sons Co., David, Philadelphia, Pa

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For Sale—Well established sheet metal business in Macomb, Illinois. Good opportunity for some one. Owing to advanced age will sell at a bargain. Material and tools about $1,500.00. Address Sturm's Tin Shop, Macomb, Illinois. 12-3t

Wanted—To buy a small tinshop in a country town or will take charge of a shop with hardware firm on percentage basis. Address C-86, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

For Sale—A splendid opportunity to enter the retail furnace business in Portland, Oregon, the "Rose City." Will sell a part interest or all to an experienced furnace man and give time. J. A. Thurlow, Box 512, Portland, Oregon. 14-3t

HELP WANTED

Wanted—Tinner and sheet metal worker; one who is able to work from blue prints and lay out and do any kind of sheet metal work, including cornices, skylights, ventilating systems, dust collecting hoods and piping. We want a sober, industrious man and one who is a neat workman. If unable to meet the above qualifications do not apply. The position is in Indianapolis, Ind., and is steady. State age, whether married or single, give reference and past experience. Address C-95, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Wanted—At once, first-class sheet metal worker. Must be able to lay out own patterns. No "slow poke" wanted. One with roofing experience preferred. Give full qualifications and references in first letter. Address C-93, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Wanted—Good opening for furnace and sheet metal salesman in manufacturing city of about 14,000 population. Can work on salary and commission or straight commission. Address H. R. Wolfe Sheet Metal Works, Waukesha, Wisconsin. 14-3t

HELP WANTED

Wanted—Furnace salesman. Cincinnati territory. An opportunity for you to operate a furnace business as your own with modern line, moderate prices, complete co-operation. Must be capable of selling, superintending, installation, etc. Acquaintance with Cincinnati trade desirable. A real opportunity for the right man. Write us fully and in confidence. Address C-94, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Wanted—At once, one or two first class sheet metal workers on in and outside work. Mostly inside. Must be able to cut own patterns, etc. Must be fast and accurate. No slow "pokes" or time killers wanted. 8 hours or 44 hours per week. Wages $1.00 per hour up. Steady work if you make good. Address Jewett Cornice and Roofing Co., 510 Market Street, San Antonio, Texas. 13-3t

Wanted—A sheet metal worker who is a mechanic. Kindly give age and full details in first letter. No floater need apply. We have a steady job, open shop, 30.90 per hour. Can come at once. Address North Western Sheet Metal Co., General Delivery, Rockford, Illinois. 13-3t

Wanted—First-class erecting mechanic to install dust collecting systems in New England and New York State. Single man preferred. State fully experience, age, references and rate per hour. P. O. Box 870, Hartford, Conn. 12-3t

Wanted—At once, experienced sheet metal worker and furnace installer. Must be a mechanic. Good, steady job for congenial man. State wages in first letter. Address Charles F. Tolg and Son, 238 Broadway, Waukesha, Wisconsin. 13-3t

Wanted—First-class plumber and fitter. Would prefer one who has good knowledge of general tin work and furnace. Steady employment to right man. Not a Handy Andy's job. G. E. Beard Plumbing Co., Petoskey, Michigan. 14-3t

SITUATION WANTED

Situation Wanted—Tinner, plumber and furnace man wishes steady position the year around. Will consider buying working interest if suited. Have had 25 years experience. Can furnish the best of references. Honest and willing worker. Prefer hardware store in connection. Address W. H. Oneth, 618 E. 5th St., Des Moines, Iowa. 13-3t

Situation Wanted—By tinner, sheet metal and furnace man; also can do plumbing. Position must be steady the year around. State wages and particulars in first letter. Married. Can come at once and furnish best of references. Address Lee O. Bailey, Parkston, South Dakota. 11-3t

Situation Wanted—By young practical tinner and furnace man in plumbing shop. Good education. Want to develop along the lines of plumbing. Prefer Illinois. Can furnish good references. Have knowledge of plumbing. Address C-90, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

Situation Wanted—By first class heating and ventilation man. Would like to hear from some good firm in or west of St. Louis, Missouri. Address C-87, care AMERICAN ARTISAN, 620 South Michi- of AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

Situation Wanted—Tinner and furnace man would like a steady position; can do inside and outside work. Married. Address C-89, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

Situation Wanted—Sheet steel salesman would like to make arrangements to represent a sheet mill in Ohio and Indiana. Conversed with all grades of sheet steel and sheet metal formed products. Address C-82, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

Situation Wanted — Good all-around hardware man. Open for good position. 15 years' experience. Can do Plumbing and heating. Must be steady position. Address C-80, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

SITUATION WANTED

Situation Wanted — By a first-class plumber, tinner and furnace man; also steam, hot water heating and repair work. Have worked over thirty years at the trades. Married. Want a steady position with hardware shop. Prefer a position in a small city or town. Want two weeks' notice. Please state wages. Address C-83, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

Situation Wanted—By heating engineer and estimator. 15 years' experience on furnace work. Can also direct installation and shop work. Can cut patterns, lay out and install any furnace. Familiar with the Standard Code. Available at once. Please state salary and location. Address C-84, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

Situation Wanted — Position as tinner and furnace man. Can also do plumbing and hot water heating. Married man. Must be steady position. Can take charge of shop and handle anything that comes in the shop. State wages and patriculars. Can furnish best of references. Address Lee O. Bailey, Parkston, South Dakota. 14-3t

Situation Wanted—By tinner, plumber and furnace man. Young. Married. 12 years' experience. Neat workman. Prefer Iowa, Minnesota or Wisconsin. Must be steady position. References. Can come at once. Address Box 284, Clermont, Iowa. 14-3t

Situation Wanted — A1 plumber and sheet metal man, fully competent in all lines of the trade, wants a good paying, steady position, with a live firm Answer, stating wages. Address C-96, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Situation Wanted—In tinshop or hardware store. Married man with practical experience and able to furnish best of references. Address C-81, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

Situation Wanted — By tinner, sheet metal worker and furnace man. Illinois or east Iowa preferred. Address 275 East Warren St., Galesburg, Illinois. 14-3t

TINNERS' TOOLS

For Sale—The following slightly used tools, 1 20 inch grooving machine, 1 2x30 inch forming roll, 1 set roofing tongs (3 pieces), 1 hatchet stake, 1 needle case stake, 1 candle mould stake, 1 30 inch roofing folder, 1 30 inch stove pipe folder, 2 beader and crimping machines, 1 small turning machine, 1 elbow machine, 1 hollow mandrel stake, 7 hand groovers, 5 rivet sets, 2 hollow punches, 1" and ½", ½" and 1", 2 machine standards, 1 turning machine, and stand (large), 1 burring machine and stand (large), 1 burring and stand (small), 1 beading machine, 6 inch throat, 1 bench shear 9 inch cut, 1 special ½ inch black and decker drill. Will quote prices on application subject to prior sale or make offer, for whole lot or each tool. Address Rapids S. M. Works, Wisconsin Rapids, Wisconsin. 13-1t

Wanted—A full set of second-hand tinner's tools. Same must be in good condition and reasonable. Address E. A. Schmidt, Wisconsin Rapids, Wisconsin. 12-3t

Wanted—Tinners' tools and machines. Must be in first-class condition and priced low for cash. Address C-78, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

Wanted—Slip roll former for belt drive. Rolls 5" to 6" in diameter, and 36" to 42" long. Give full information, together with lowest price. P. O. Box 870, Hartford, Conn. 12-3t

Wanted—To buy a used squaring shear, 30 or 36 in., also a 8-ft. cornice brake, both must be in good condition and at a reasonable price. Address Nicholsen & Hawk, 326 South Jefferson St., New Castle, Pa. 14-3t

Wanted—All around man who can do tinning, plumbing, etc., to work in Wisconsin Hardware store. Give full qualifications and wages expected. Address C-91, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

TINNERS' TOOLS

For Sale or Trade—One self-feed drill, large size, 1 roofing folder, 1 solid mandrel stake, 1 stock and dies, cut 2 to 3 inch pipe, 1 stock and dies, cut to 1½ to 2" pipe. Wanted—20" barfolder, small turning machine, large burring machine. Address Charles Hahn, 5146 Irving Park Blvd., Chicago, Illinois. 12-3t

Wanted—An 8 ft. Chicago steel brake, 18 gauge capacity. Must be in first class condition. State in first letter what you have and lowest cash price. Address Box 216, Saybrook, Illinois. 13-3t

For Sale—One power conductor pipe seaming and corrugating machine, including mandrils for plain round and round corrugating and square corrugating pipe. Address Friedley-Voshardt Co., 733 S. Halsted St., Chicago, Ill. 14-3t

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Kinks and Labor Savings Methods for Sheet Metal Workers, Vols. 1 and 2—Volume I. There are hundreds of ideas and expedients, all contributed by sheet metal workers throughout the country, illustrated by cuts and original drawings. Cloth bound. Size 4½x7 inches. Price $1.00. Volume II written in same popular style as Volume I. Places at your disposal a comprehensive collection of ingenious ways of executing many practical tasks in much more simple way than if done in the regulation manner. Also contains special articles on Automobile Repairing; gives a very practical series of illustrated directions on erecting metal ceilings with ten guide rules which will save time, trouble and expensive mistakes. Price $1.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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Salesman calling on industrial plants, etc., in Illinois, to sell ventilating systems for an established manufacturer. Excellent opportunity for right man. Address W-11, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t.

SPECIAL NOTICES

SITUATION WANTED

As salesmanager of manufacturer's furnace dept., or traveling, by a man thoroughly competent by reason of 25 years' broad experience, character, integrity and ability. Extensive coal and gas stove experience. High class reference as proof of unusual record. Age 45, permanent residence Indiana. Available soon. Address W-12, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-3t

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wants position with someone willing to go fifty-fifty on constructing — installing — marketing new **Low Cost Automatic Fuel Oil Burners.** Common shop facilities sufficient to build up a big business. Not interfering with other work. Address "Heating Expert," 2217 So. Millard Avenue, Chicago, Illinois. 14-1t

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We have three good territories open for experienced furnace salesmen, interested in multiplied opportunities for sales, backed by complete re-sale co-operation.

We need a good man for the state of Nebraska, also one for Missouri.

The line is the most complete in the heating equipment field, established nearly three-quarters of a century, including coal and gas-fired warm air furnaces and boilers, registers and furnace fittings, with an attractive list of specialties.

The opportunity is immediate. Write in complete confidence to W-7, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 8-tf.

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ON NEW DESIGN STEEL FURNACE

MANUFACTURERS will be interested in the design of this steel warm air furnace which has features that—

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THE patented features of this furnace are such that they can be used on furnaces now manufactured.

For full information and copy of PATENT PAPERS, address J. A. M. care of AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill

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STATE REPRESENTATIVES WANTED

to handle complete line of furnace fittings for one of the oldest and best established firms in the country.

We want men in all the Northern, Southern and Western States to represent us either exclusively or in conjunction with some hardware or sheet metal line.

Experience in furnace fittings not necessary, but acquaintance with trade would be very helpful. Give full details in first letter.

Write at once to W-8, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 10-3t.

WANTED

Experienced Parlor Furnace Salesman to call on the larger trade in the Middle West. Give full details of experience when applying.
The Waterman-Waterbury Company,
1121 Jackson Street, N. E.,
Minneapolis, Minn. 14-1t

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Several territories now open for experienced salesmen, who know the heating game. Our line includes everything in the heating line, for every kind of fuel. Write us in confidence, stating territory preference, and experience. Address L. J. Mueller Furnace Co., Milwaukee, Wis. 10-tf.

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Retail furnace business in a Pacific coast city can be purchased right. We have a profitable contract to distribute in Pacific coast territory for the manufacturer. Satisfactory reasons for selling. Right man who is entitled to credit can acquire this business with a reasonable down payment. Address, Pacific Furnace Dealer, in care of Lennox Furnace Company, Marshalltown, Iowa. 11-4t.

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Experienced in selling the more progressive heating equipment dealers.

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Due to increased production facilities and an enlarged sales policy, heretofore uncovered territory is now made available.

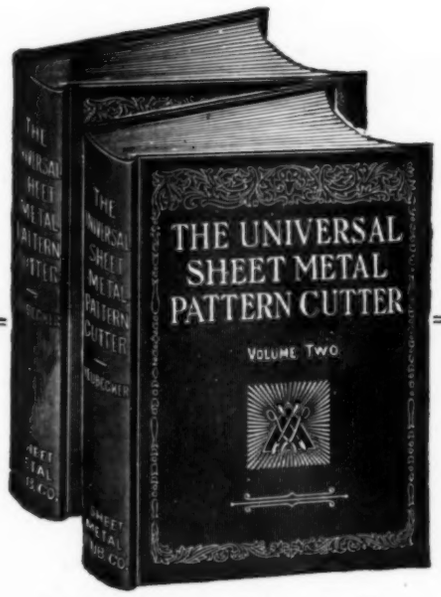
Compensation will be commensurate with ability on a strictly commission basis.

Applications from salesmen who are now selling supplies and equipment to the dealer trade and who desire an added line will also be considered.

The members of our organization have been advised of this advertisement.

In your reply give a brief history of your selling experience, territory covered, and the products you are now selling.

Address Box 666
AMERICAN ARTISAN
620 So. Michigan Avenue
CHICAGO, - - - - ILLINOIS



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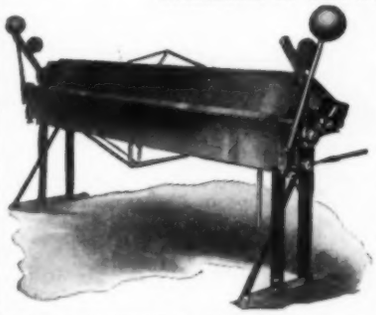

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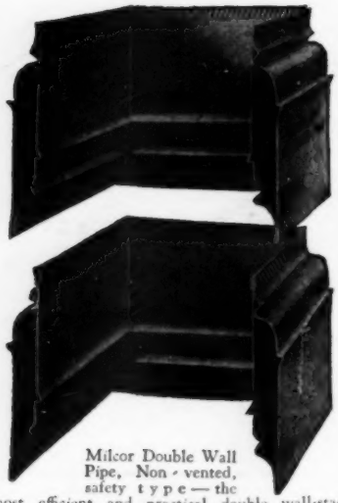

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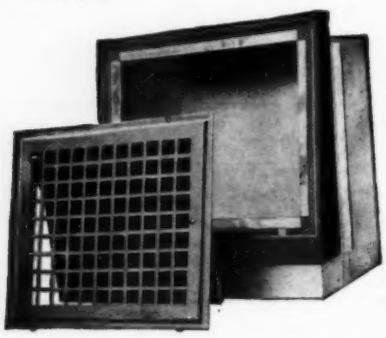

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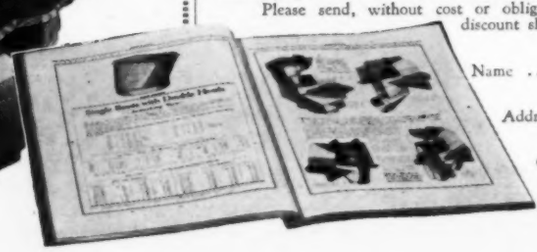

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